PETROLEUM WEEK

DECEMBER 21, 1956

■ A McGRAW-HILL PUBLICATION

Season's Greetings from Petroleum Week

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Price 35 Cents

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by your Ethyl Service Reporter

CHECKING DRUMS—This laboratory technician is taking samples from drums of "Ethyl" antiknock compound for analysis prior to shipment. Comprehensive quality controls in every step of manufacturing assure refiners a uniform, high-quality product they can depend upon in their blending operations.

TAKING A READING—Larry Matthews, Ethyl Product Service Engineer, is shown using his lead-in-air analyzer to test air samples taken from inside the storage tank in the background. The lead-in-air analysis kit, now used throughout the petroleum industry, was developed and first produced by Ethyl to assure maximum safety in refinery tank-cleaning operations.

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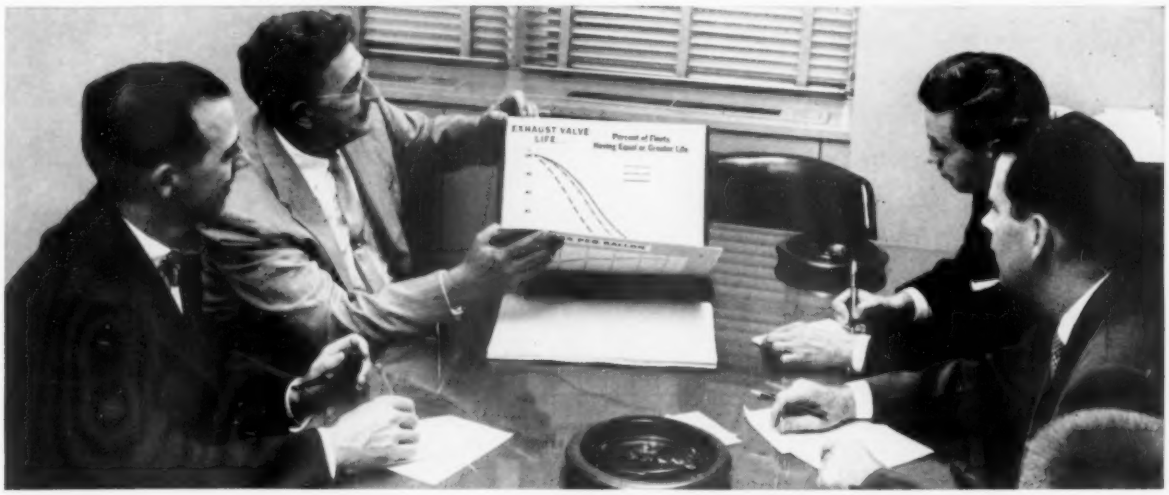
New York 17, New York

TOPICAL TALK—One of Ethyl's services is to provide its customers with specialized market information. This group of oil company people is attending an informal talk by Charles P. Speaker on "Trends in Heavy-Duty Fleet Operation." The information for these talks is compiled from Ethyl's nationwide surveys on the operating characteristics of commercial engines.



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ABOUT THIS PHOTOGRAPH—In capturing this closeup of corroded "coupons" and a distance shot of a refinery on the same negative, well-known photographer Bernard Hoffman achieved amazing depth of focus. Using revolutionary techniques which he has pioneered, Mr. Hoffman is able to achieve over-all sharpness of near and far objects; long the goal of photographers.

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60-Second Summary / WHAT'S HAPPENING IN OIL

December 21, 1956

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Tight money is apt to stay tight in the immediate future. For much of the oil industry, accustomed to self-financing, this is not a major problem. But smaller and newer oil firms are feeling the pinch as loans are harder to get, and more costly when they can be obtained. . . . p. 9

•

Two 100,000-ton tankers are now on order; one of them scheduled for 1958 delivery. The contract for one, a U.S. flagship for 1960 delivery, was announced first by U.S. interests of A. S. Onassis (page 16). Later it was learned that Onassis is buying another, to fly the Liberian flag, for 1958 delivery. Both will be built by Bethlehem.

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Air and gas drilling may be on the verge of breaking through the barriers that presently limit its use. Success would mean lower drilling costs because of higher penetration rates and longer bit life. Major obstacles: formation water, sloughing formations, and high pressures. . . . p. 21

•

The price of just about every item of steel used by the oil industry is going to go up soon, steel industry sources predicted this week. Freight rate increases granted this week by ICC will affect delivered prices on some items immediately. And a general steel price increase seems certain before the end of the first quarter of 1957.

•

Electric utility firms plan to compete sharply with fuel oil and natural gas for space heating sales. The reason: Capacity has been stepped up to handle the upsurge in air conditioning, and utility firms don't want that capacity idle during the winter months. . . . p. 12

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The nearest approach to an "automatic" process unit will be tried by Esso Standard (Cuba). It will integrate an analog computer system—a joint project of Esso Research & Engineering and Fischer & Porter—with a fluid cat cracker. . . . p. 28

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Theft of secret oil exploration maps from Gulf Oil Corp.'s Pittsburgh office was revealed at midweek with arrest of four men charged with complicity in the crime. Most of the maps, valued at more than $1-million, have been recovered.

•

The Texas Railroad Commission didn't set allowables at its Wednesday meeting. A group of independents argued against any increases until more than 7,000 unconnected wells are connected. Meanwhile, one company asked for 19-day allowables, four for 18, six for 17, and two for 16. The commission asked the companies to submit data for study on how more crude can be moved.

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
December 21, 1956

Controversy is just beginning over the oil-for-Europe program. The Administration is convinced that the emergency can be handled through voluntary cooperation between the government and the oil industry—without burdensome controls. Government officials disclaim any responsibility for what may happen to prices. And they're determined to avoid interference with state conservation bodies. This leaves the government—and some industry elements—open to criticism if consumers and the "little" oil man complain they are being hurt by higher prices and tight supplies.

•

The government is moving to head off criticism. The Middle East Emergency Committee, composed of 15 oil companies with operations abroad, will probably be enlarged to include independent U. S. tanker operators. Qualified representatives of the independent producing, refining, and transportation segments of the industry are being brought into the Office of Oil & Gas as consultants (page 16). They can sit in on MEEC meetings, and guard against any actions that, in their opinion, might hurt the domestic industry.

An all-out effort will be made to prevent any shortages in the U. S. Interior's Office of Oil & Gas is setting up a programing unit to be sure the overseas shipments don't interfere with normal supply to U. S. consumers. Fuel oil, already in tight supply before the Suez crisis, is the big worry. The National Oil Jobbers Council complains that fuel oil will be priced right out of the U. S. market in some areas—with natural gas taking over.

•

Critics say the setup is loaded in favor of MEEC members. A key spokesman for independent producers say the National Petroleum Council should have been called in at the beginning, to provide data on crude availability and possible solutions to transportation bottlenecks. This way, he says, all segments would have had a voice from the first. The Independent Refiners Assn. of America feels that MEEC should be limited to acting jointly to carry out programs drawn up by the Interior Dept., after consultation with all industry segments.

The sharpshooting will fade if the emergency program works well. But handling of the program affects millions of consumers—and the future of many domestic companies. This makes it a ready-made political issue if serious complications arise—particularly since MEEC members are "big business." Several congressional committees are watching developments, and an investigation is likely. Under these circumstances, the government will be pressed to take a stronger hand in gasoline-fuel oil yields from U. S. refinery runs, and in suggesting action to be taken by state conservation bodies.

•

NPC will be asked to make a new study of crude availability. Even before the Suez Canal was closed, government oil planners had questioned whether this country actually has more than 2-million b/d excess producing capacity for the long haul. The emergency underlines the importance of this point, and the Interior Dept. plans to ask for a new study at the NPC's next meeting, in a month or so. Availability of crude for movement where it would be needed most will probably be studied, too.

ONE OF A SERIES . . .

What makes a cylindrical roller bearing good?

WELL-MADE, VERSATILE OUTER RACES

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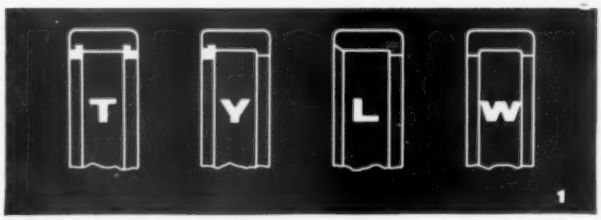
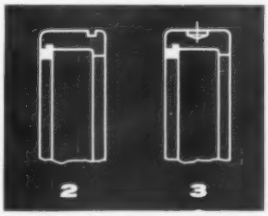


1. OUTER RACE TYPES

HYATT Hy-Load outer races are available in a variety of standard configurations (Figure 1). W, L and Y races have solid flanges, which sustain light or intermittent thrust loads. T and Y races with internal snap rings have equal radial load-carrying capacity but are not recommended for applications under continuous thrust. T, Y, L and W races may all be mounted using roller ends against the solid shoulder or internal snap ring for purposes of locating the outer race axially.

2. CIRCUMFERENTIAL LOCATION

An ample choice of outer race locating methods may be used with HYATT Hy-Loads. Circumferential location is often by a press fit. (Generally the rotating race should be applied with a press fit and the stationary race with a push fit.) When a push fit is used, axial clamping against the race ends provides satisfactory circumferential location. Positive circumferential location is provided by an outer race dowel.



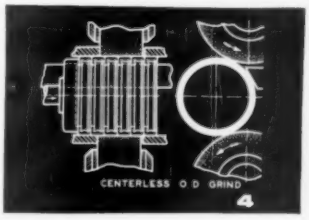
3. AXIAL LOCATION

Axial location of an outer race is usually by pressing or pushing the race to a housing shoulder. The race may be prevented from "walking out" of the housing bore by the flange or snap ring operating against the roller ends. Axial clamping against a housing shoulder or snap ring provides positive axial location. However, if a shoulder is not available in the housing, an auxiliary holding device such as an external snap ring or an outer race dowel is needed. HYATT Hy-Load Bearings can be supplied to original equipment builders with outer races having a snap ring groove (Figure 2) or a blind dowel hole (Figure 3), at moderate increase in cost.

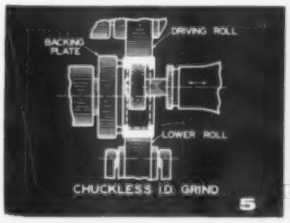
4. OPERATIONAL REQUIREMENTS

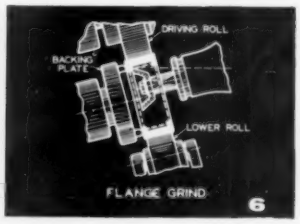
Quality controls are rigidly applied to all HYATT outer races to maintain: a. Minimum wall variation; b. minimum runout of race ends to bore; c. minimum runout of race flange inner faces to bore; d. minimum pathway and outer diameter taper; e. minimum outer diameter tolerance.

5. MANUFACTURING PROCEDURES



After careful primary machining and heat treating, ends are faced off square and parallel by a double end grind. This provides a reference surface from which all runouts and squareness can be gaged. Outer race diameters are generated by the centerless grinding method to provide an O.D. with as little out-of-round as practical. The through-feed method is a valuable economy (Figure 4). Next, the pathway (or race I.D.) is ground centerless, generating a cylinder concentric with the O.D. cylinder, by driving the race on the O.D. and positioning the grinding wheel relative to the drive roll (Figure 5). Finally, flanges are ground using the race ends as a reference. The result is a race of as nearly perfect geometry as is practical (Figure 6). Critical final inspection completes the procedures.





300,000 b/d

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THE THREE Foster Wheeler Crude Distillation units below, on stream at Creole's Amuay Bay refinery in Venezuela, are now scheduled to be joined by a *fourth unit* which will increase the crude charging capacity to approximately 300,000 bbl/day. The new FW 75,000 bbl/day single-stage Crude Distillation unit can be operated as a crude topping unit at a capacity of 110,000 bbl/day.

Also included in this latest expansion program will be a Lube Hydrofining unit; a Hydrofiner for the desulfurization and general quality improvement of Diesel oil; a Phenol Extraction unit; a Propane Dewaxing unit and complete blending, canning and packaging facilities. All process units will be designed and constructed by Foster Wheeler.

For further information, write to *Foster Wheeler Corporation, 165 Broadway, New York 6, N. Y.*

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Money Will Stay Tight in Early '57

- All up and down the line, oil men are being told by their financial backers to "go slow on spending."
- Producers are still called good loan prospects. But some drilling contractors may run into trouble.
- Refiners and transporters will get the loans they need—but not at the terms they're accustomed to.

Oil industry planners are resigning themselves to the necessity of living with "tight money" problems for as much as another six months.

Oil men aren't happy with the prospect of continued difficulty in getting the money they need. Many of them have had a tough time financing their 1956 business deals, and have been hoping for a "loosening" of credit by early '57.

Hopes for a change in the Federal Reserve Board's tight money policies got some thing of a shot in the arm last week: A Senate-House subcommittee on economic stabilization held hearings on the current credit situation. Rep. Wright Patman (D., Tex.), chairman of the group, is hoping to pressure the board into a reversal of its present position, which, he says, "may wreck the economy."

But chances for an early credit loosening are slim, according to results of a PETROLEUM WEEK survey last week of oil investment houses in New York, Houston, Dallas, Tulsa, Chicago, Los Angeles, and San Francisco.

I. More Loan Selectivity

For much of 1957, investment capital will be available only for "worthwhile projects." By this, investors mean only deals with assured high rates of return. Speculative projects are getting harder to finance.

Most financial authorities agree that the present credit situation won't be changed before the first quarter ends—if then. They point out that the demand for loanable funds has been skyrocketing, and that the supply is wilting under the strain.

Until money supply and demand can be brought into better balance, credit will continue to come high.

The Federal Reserve Board made an important move to help "bring in" more loanable money earlier this month: It authorized an increase in interest rates on savings accounts in commercial banks.

Bankers say that this is a step in the right direction. But they caution that it will be "some time" before higher interest on savings accounts has any appreciable effect on over-all loanable funds.

Meanwhile, most institutional investors — commercial and savings banks, savings and loan associations, and insurance companies—agree that oil men can look for no easing of the money pinch any time soon.

Investors are making it plain that they're not at all anxious for nonliquid loans. Property purchases and high-cost offices are now being considered marginal loan projects. A Chicago bank, long active in oil investments, adds it up this way: "We are helping our customers where a loan increases productivity. But we are not making loans for property purchases and where credit obligations are created, or where proceeds of the loan would go into somebody's pocket."

II. High Rates, Short Terms

Oil men will have to agree to higher interest rates and shorter terms than they've been accustomed to.

Like that of any other commodity, the cost of money is determined by its supply and demand. With money short, interest rates have risen steadily in the past year and a half. Continued short supply could jack the interest rate up even further.

Oil men will have to pay between 4% and 5½% interest, depending on credit rating, and the size and duration of loans. These higher rates reflect the recent increases in the Federal Reserve discount rate—the interest rate charged commercial banks when they borrow from the Reserve. The discount rate was 1½% in the spring of 1955. It's up to 3% now.

Higher rates aren't the only change oil men will have to face in obtaining loans. Because of the shortage of loanable funds, many investors are turning thumbs down on long-term loans. They'll loan the money, but they want it back as soon as possible. So the 5-, 10-, and 15-year deals will become harder to find.

Instead, oil men will have to base their plans on shorter-term financing. Two- and three-year loans will be used a great deal more than they have been.

Oil companies without established credit lines will be hit hardest. Others —even those with long-standing, healthy relationships with investors— will be asked to go slow on spending.

New customers in the money market are virtually out of luck. Available dollars are being apportioned first to "steady customers." If there are "leftovers," a new customer with a good sound deal will get attention. But generally, there aren't going to be many "leftovers" after deals with the "steadies" are made.

A Tulsa banker is frank about new accounts: "You can add it all up to selectivity. We are being more selective in whom we loan our money to—And we aren't trying to drum up any new business."

Many banks in New York, Los Angeles, and the Southwest producing country will negotiate loans only with those oil companies which intend to maintain substantial deposits.

Even oil companies with established credit lines will be asked to cut corners in their 1957 spending.

The executive vice-president of a Tulsa bank says: "We are advising our

customers to take a long look at things, and not to bite off more than they can chew."

The feeling is the same in Houston, where oil men are being told: "Try to gear your operations as much as possible to income, planning on a minimum of bank help. You can count on your banker for 'necesary' loans, but he's going to insist that you go slow."

III. New Emphasis on Equity?

Larger companies have built-in insulation to the tight-money problem: Chances are good that they'll be able to make greater use of equity financing as long as debt money remains tight.

Sinclair Refining Co. is one major that has recently floated a new stock issue: Socony Mobil Oil Co. has announced one for next spring. Others are known to be considering similar action soon.

Most majors can also get the money in debt capital if they choose to. Well-established credit lines and high credit ratings give these companies an alternative means of financing.

But even so, debt issues sometimes require sweetening. For instance, Phillips Petroleum Co.'s new $171-million debenture issue, announced this week, is convertible to common stock.

But many majors will probably stick with an old favorite — internal financing.

Each company's choice "will depend on how its capital program lines up with its flow of funds," according to the treasurer of a southwest major. "This will vary by company" he says. "Some of these companies have made pretty good sized purchases recently. And that has a bearing on whether or not they need outside funds."

IV. Across the Board:

Continued tight money will bear heavily on each segment of the industry:

Producers, generally, are called good loan prospects. But many independents will be hard-pressed to get the dollars they need.

The prime collateral that producers have to offer—oil in the ground—has preserved their position as good loan prospects, according to most investors.

A Chicago bank is still this enthusiastic: "We like producer loans where there are proven reserves. We consider these excellent risks if the loan is set up properly."

But the head of the petroleum department of a large Dallas bank isn't quite so open-minded: "There is still enough money available for loans," he says, "but an operator needs to have a good sound deal if he wants to get a loan."

Some independents are worried. One Houston operator, pessimistic about the future, told PETROLEUM WEEK that "there just isn't any money. And my banker tells me that it's going to get worse."

He contends that exploratory drilling may be hurt seriously: "If an operator has, and can get, a certain amount of capital, he'll probably use it to drill inside (development) wells. That's because if he drills a wildcat that's a duster he loses precious capital. But if he drills inside, he gets his money back."

Other producers contend that the money pinch will affect developmental wells just as much as wildcats.

Drilling contractors will find investors more reluctant. Marginal operators may have a tough time staying in business.

Loans to drillers are being placed down low on the priority scale. Investors' increasing selectivity and the swing away from speculative deals may provide real trouble for contractors banking on outside loans.

Another reason drilling contractors may have trouble getting money: Investors don't like to make loans against drilling equipment.

As a result, service and supply companies may feel a slight demand drop-off.

The sales manager of one equipment company says that continued tight money will probably make drilling contractors think twice before investing in new equipment.

But most service and supply companies are bullish. A typical point of view: "Even though the money market is tight, we don't expect it to affect our business . . . Maybe some of the small outfits will have trouble floating a loan, but this won't hold for substantial people."

Although the number of active drilling contractors may fall off, crude supply will meet the new demand heights brought on by the Suez crisis.

Closer screening of loan applications will take some drilling contractors out of the competitive picture. But there's little doubt that other contractors and producers will take up the slack.

The increased cost of money will add new weight to the producers' case for a crude price increase.

Higher cost of money, coupled with increased steel and labor costs, have already generated a crude price rise in the Corpus Christi and Rocky Mountain areas (PW—Dec.7'56,p10). And many producers and buyers see these increases in costs as paving the way for an early general boost in crude prices.

Transporters, usually long-term borrowers, will have to settle for quicker loan maturity—and higher rates.

Pipeline construction, perhaps more than any other segment of the industry, is financed on a long-term basis. But long-term credit will be very expensive—where it isn't extinct.

Even if pipe companies accept shorter terms, they're in for an interest hike.

Coupled with the recent steel price hike, costlier money could postpone some line projects now in the planning stage.

Some tanker-builders, looking for money to expand in order to handle orders generated by the Suez crisis, are being disappointed by interest rates and duration of loan offerings that confront them.

Most refiners will find the money necessary to expand their facilities—but again, they'll have to pay more for it.

The banker's point of view: "Refinery improvement loans are considered a little more speculative than those for producers. But these are good days for refiners."

The tremendous outlays planned for refinery improvement during 1957 (PW—Dec.14'56,p9) will require a lot of outside financial investment—at going rates. And rates may be going up.

Some small, independent refiners may get caught in a financial bind.

Some of the smaller processing companies, in an effort to upgrade equipment and product, are having a tough time of it. Those without established credit lines will be especially hard-pressed to stay in the race with the majors.

A few independents in the Southwest have decided to hold off on investments plans until money becomes more "reasonable."

Marketers will have to be more selective on service station lease deals. And some potential owner-dealers for service stations may be frightened away by the high interest rates.

The marketer's case was put this way: "Take the station deal where a bank finances a man to become a service station owner-operator. As bank interest rates go up, some people who might want to go into the business may decide against it. It just doesn't seem attractive enough to them at that rate of interest."

Big Tanker Race Is On

The world's shipyards are humming with tanker construction. But lack of steel may keep them from building enough ships fast enough.

The trend to giant tankers also creates the need for more adequate port and ship repair facilities.

The world's tanker fleet is likely to increase by more than 50% between now and 1961.

This was the conclusion reached by the National Petroleum Council's committee on tanker requirements in an interim report it made last week.

The committee's study was done at the request of the Administration to determine the status of tanker tonnage following closure of the Suez Canal.

It covered actual construction, orders placed, and future plans of tanker operators.

Shipyards are booked solidly through 1961, the NPC committee said.

The world's existing tanker-building capacity is capable of turning out the equivalent of 300 T-2 tankers a year. Of these, 25 could be built in the U.S., and 275 in foreign yards.

Because of the tight supply of steel, the NPC committee said it felt this was the maximum capacity.

Previous reports on shipbuilding capacity by the Maritime Administration indicated that there were at least 16 ways available now that could be used for building supertankers if more steel were available.

The possibility that the government might allocate steel in order to bolster tanker construction seems to be pretty well ruled out.

The Office of Defense Mobilization and other government agencies have had several rounds of discussions with the industry on the matter. The guessing in Washington is that the government will try to get steelmakers to step up production of plate and structural steel voluntarily, rather than get involved in allocations.

Washington officials apparently feel that steel allocations now might complicate, rather than help solve, the current problem of getting oil to Europe.

Their reasoning is that the current supply problem must be met with existing tonnage—not new construction. And any allocation of steel for tankers now would touch off a series of demands from other industries for equal treatment.

Furthermore, Washington notes, tanker building is proceeding at a record rate at present without any allocations.

This is the current tanker picture: The world fleet totals 43-million deadweight tons. And 29-million tons more are under construction or definitely planned.

The biggest bloc of new tanker construction is slated to be for ships in the 30,000- to 40,000-ton class, with 317 such tankers either building or planned.

This is followed by tankers in the 40,000- to 50,000-ton class. There are 151 of these scheduled, amounting to nearly 6.7-million tons.

Next in line are some 303 tankers in the 16,000- to 20,000-ton group, with a total of 5.7-million tons.

Only 13 tankers are planned in the 50,000- to 60,000-ton class. But 26 are scheduled to go over 60,000 tons.

The "daddy" of all the giants being scheduled is a 100,000-ton tanker to be built by A. S. Onassis, the Greek shipping magnate (page 16).

The shift to big tankers will require extensive work in developing port facilities and repair yards.

Many ports cannot handle a tanker of the 100,000-ton class with present facilities. And ships of that size could not use the Suez Canal, for example, except when empty.

One step already being discussed is the construction of offshore loading and unloading facilities (PW—Oct.5 '56,p33). This would enable a tanker to stand several miles out from a port and pump oil in to the shore installations through pipelines.

The emergence of the giant tankers may also have a long-range impact on normal tanker routes, particularly in the Middle East. They could go around Africa and still be able to compete with smaller ships using the Suez Canal.

Dr. DeGolyer, an Oil Pioneer

Dr. Everette Lee DeGolyer—one of the oil industry's foremost geologists—died last week at Dallas. He was 70 years old. He had been in ill health six years.

A verdict of suicide was returned by Justice of the Peace Glenn Byrd, after a secretary found DeGolyer slumped over his desk with a gun nearby.

DeGolyer was the head of numerous oil and geology concerns. In addition, he was noted in literary circles as chairman of the board of the literary weekly, The Saturday Review.

His reputation was established in international oil circles as early as 1910, when he staked a location in Mexico for the Petereo No. 4 well, which came in for 100,000 b/d. (The well eventually produced 130-million bbl.)

He started Amerada Petroleum Corp. with profits from some oil deals. As an outgrowth of his work with Amerada, he established Geophysical Research Corp. in 1930, and helped organize Geophysical Service Inc.

He was a past president of the American Assn. of Geologists. In 1952, he was inducted into the Oklahoma Hall of Fame.

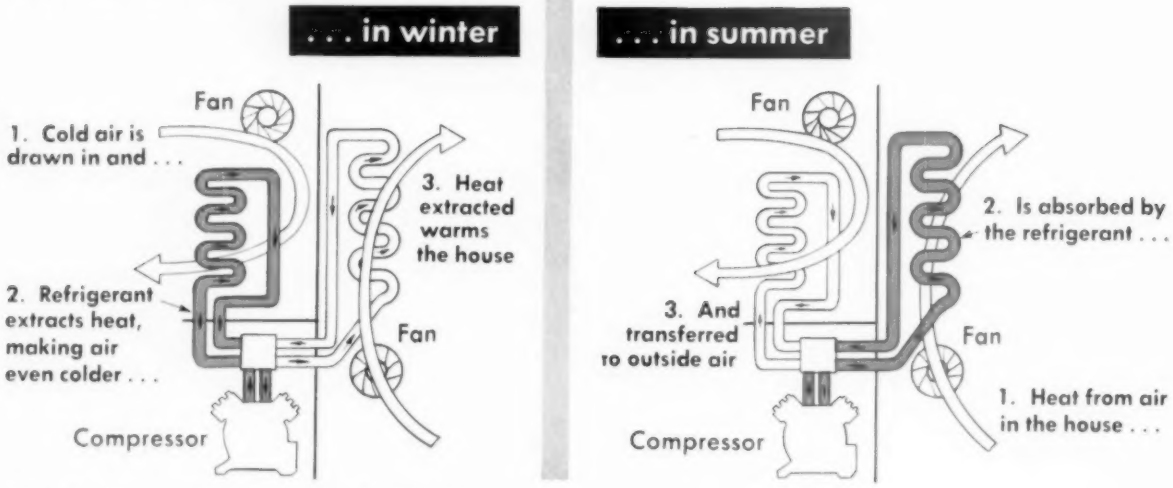
He has been credited with developing many geophysical methods used in oil exploration today.

The adaptation of seismograph methods for finding promising oil sites was one of his most notable achievements.

Estimates of his wealth ranged from $10-million to $100-million. Last year he gave a collection of geology books valued at $200,000 to his alma mater, the University of Oklahoma.

Dr. DeGolyer was born Oct. 9, 1886, in a sod house near Greensburg, Kan. The survivors include his widow and four children.

How the heat pump works


. . . in winter
Fan
1. Cold air is drawn in and . . .
3. Heat extracted warms the house
2. Refrigerant extracts heat, making air even colder . . .
Fan
Compressor
. . . in summer
Fan
2. Is absorbed by the refrigerant . . .
3. And transferred to outside air
Fan
1. Heat from air in the house . . .
Compressor

Fresh competition for fuel oil, gas:

Electric Firms Push Space Heating

Electric utilities are determined to jolt oil and gas interests out of a bigger share of the space-heating market.

They held what amounted to a council of war this month in New York City. Some 190 representatives of utilities, appliance and controls manufacturers, and other interested parties conferred on the prospects of putting across an old dream: the all-electric way of life.

Until recently, most utilities were reluctant to promote electrical space heating. Some actively discouraged such installations.

Manufacturers and distributors of heat pumps and resistance heating systems have long sought utility help in putting across their wares to the consumer.

But the utilities have been traditionally indifferent because:

- They didn't want to build up more winter demand; because of existing winter demand, their facilities were already "overbuilt" on the basis of demand in other seasons.
- They didn't want to spend time or money pushing a product that couldn't compete—on an annual cost basis—with natural gas, fuel oil, or other combustible materials.
- They felt it would be poor public relations to encourage their customers to install electric heating systems that might prove defective, inefficient, or inadequate. And they didn't want the headaches of calculating heat loss, "policing" installations, and promoting optimum insulation—only to have the customer wince anyway every time he got his electric bill.

I. The Current Trend

Now the utilities are reversing their field. One utility spokesman after the other assured the New York gathering that his company has "got religion."

"Our competition," said C. M. Wallace, vice-president of Georgia Power Co., "will become painfully aware that we're in the business of selling electricity for space heating."

His comment was typical of the new aggressive attitude demonstrated at the conference.

Some of the "combination" companies (those that sell gas as well as electricity) remained uncommitted to the new policy. But they were subjected to a barrage of reasons why they should help drive combustible fuels out of homes, schools, churches, commercial buildings, and industrial plants.

The rapid expansion of air-conditioning is probably the biggest factor in the new utility outlook.

George S. Jones, managing director of the Air Conditioning & Refrigeration Institute, told the group that about 1.7-million air conditioners will be sold this year alone. And the end is nowhere in sight, he said.

Everywhere in the country, businessmen are turning to air conditioning as a means of holding their employees and customers. Even industrial plants and government agencies are joining the trend, he said. There will be few individuals willing to permit their homes to be the least-comfortable buildings that they enter, he predicted.

This public demand for air conditioning has already created "summer peaks" for utilities in at least 14 states—meaning that these utilities are now looking for wintertime customers to balance their lines.

The utilities, in other words, have to invest in new facilities to keep up with air-conditioning demand. But even in the hottest states, the demand doesn't last all year. So the utilities are under pressure to find other ways of utilizing their capacity—and thereby spreading the cost of the new facilities. They figure that 2 kwh. of space heat will compensate for each unit of new horsepower added because of air-conditioning demand.

By the end of last year, utilities found themselves geared to summer loads in Alabama, Arizona, Arkansas, California, Georgia, Idaho, Kansas, Louisiana, Maryland, Mississippi, Missouri, Nebraska, Oklahoma, and Texas, according to M. R. Roger, senior marketing consultant for Middle West Service Co. (Irrigation, rather than air-conditioning, is primarily responsible for the summer peak in Idaho.)

Utilities in some 16 other states will also find themselves geared to summer peak service by 1965, Rodger predicted.

The only states that probably won't be in the summer-peak column by then, he said, are: all of the New England states, Florida, Minnesota, Montana, Nevada, North Dakota, South

Dakota, Oregon, Tennessee, Utah, Washington, Wyoming, and possibly Michigan.

One analyst figures utilities will have to aim for a 30% increase each year in space heat sales to keep up with the pace set by air-conditioner sales.

II. The Cost Factor

To put across electrical space heating, the utilities will try to ignore the price of combustible fuels—for now. On a long range basis, they're confident that their product will become the most economical.

The price of electricity will rise slightly in the next decade or so—but nowhere near as fast as the price of oil and gas, they agree.

Meanwhile, they told each other, they have found that the competitive picture doesn't mean much to a customer who wants safety, cleanliness, and reliability. Some of them are trying to arrange special low rates for heating customers. But they feel that whether they can meet the price of combustible fuels or not, they're selling "a Cadillac for the price of a Pontiac."

Even the skeptics, who figure operating costs will be a serious drawback to electric heat sales, agree that some stiff selling might pay off.

"After all," remarked one utility executive, "the builders are doing a good job of selling hardwood floors—and the floor-covering people are coming right behind them and doing just as good a job selling wall-to-wall carpeting."

Jack Bruch, a district supervisor for Cleveland Electric Illuminating Co., told the group that his firm has been promoting electrical space heating successfully for two years, without regard for its northern location or for the fact that electric heat cost a small-home owner about $100 more per year than gas heat in that area (about $50 more than fuel oil heat).

The company even has commitments to heat an 88-unit apartment and a 90-unit motel—both being built in downtown Cleveland, in the heart of the gas market.

III. Heat Pump Impact

The heat pump, a device that can either raise or lower the temperature inside a building, will play a big part in utility promotion programs.

The pump, operating on the general principle of refrigeration, extracts heat from air, water, or even the earth, depending on its design.

In winter, the heat that's extracted is pumped inside, where it's needed. In summer, the heat is pumped outside, providing cool air inside (diagrams, page 12).

Its big advantage, from the utility company's standpoint, is that it assures both summer and winter demand at each installation.

There's no guarantee that a resistance-heat customer will also buy air-conditioning, or that an air-conditioning customer will also buy electric heating. The heat pump gives the utility a sure year-round customer.

And with electricity supplying a home-owner's heating and cooling requirements, it's most likely to be used for cooking, water-heating, and other purposes as well.

As one conference speaker put it, "When we put in a heat pump, we cut off the gas pipes at the property line."

Another said studies have shown that the electrically-heated home is likely to contain double the amount of other electrical appliances, as compared with a home heated by combustible fuels.

The heat pump has its drawbacks, too. But the electrical industry is working hard to overcome them.

According to the latest survey by Electrical World, a McGraw-Hill publication, there will be some 250,000 completely electrically heated homes in the U.S. by the end of this year (more than half of them in TVA territory).

Only slightly more than 11,000 heat pump units will be on utility lines by then (a major part of them in Florida). But sales have doubled this year, and Electrical World says they'll double again next year.

More than half of the heat pumps in service are of the air-to-air type, which operate most efficiently in areas where normal outside temperature does not drop below 30F. In colder areas, they are customarily supplemented by other heat sources.

With water-to-air units (earth-to-air installations have been negligible, so far) the efficiency is more uniform, but the water required is considerable.

Nevertheless, water-to-air units have been sold in places like Nevada, and air-to-air units have been sold right up into Canada.

Heat pump manufacturers are striving both to cut initial cost and to boost operating efficiency.

Carrier Corp., for example, announced last week that it will spend $30-million in the next few years for plant expansion and improvements—much of this presumably pegged to a new heat pump also just announced.

The company said the new pump will cost 10% less, installed, than competitive models (about $3,000 in the South, $3,500 in the North), and that it will be 20% cheaper to operate than competitive models in the Gulf Coast area (Carrier made no operating claims regarding other parts of the country).

General Electric spokesmen, pressed at the New York conference as to what GE is doing to make the heat pump more popular, said that the company is spending $3-million to develop a new model that should hit the market late in 1957. They said the new pump should provide adequate heat no matter what the temperature range of the air in which it's installed.

IV. Immediate Goals

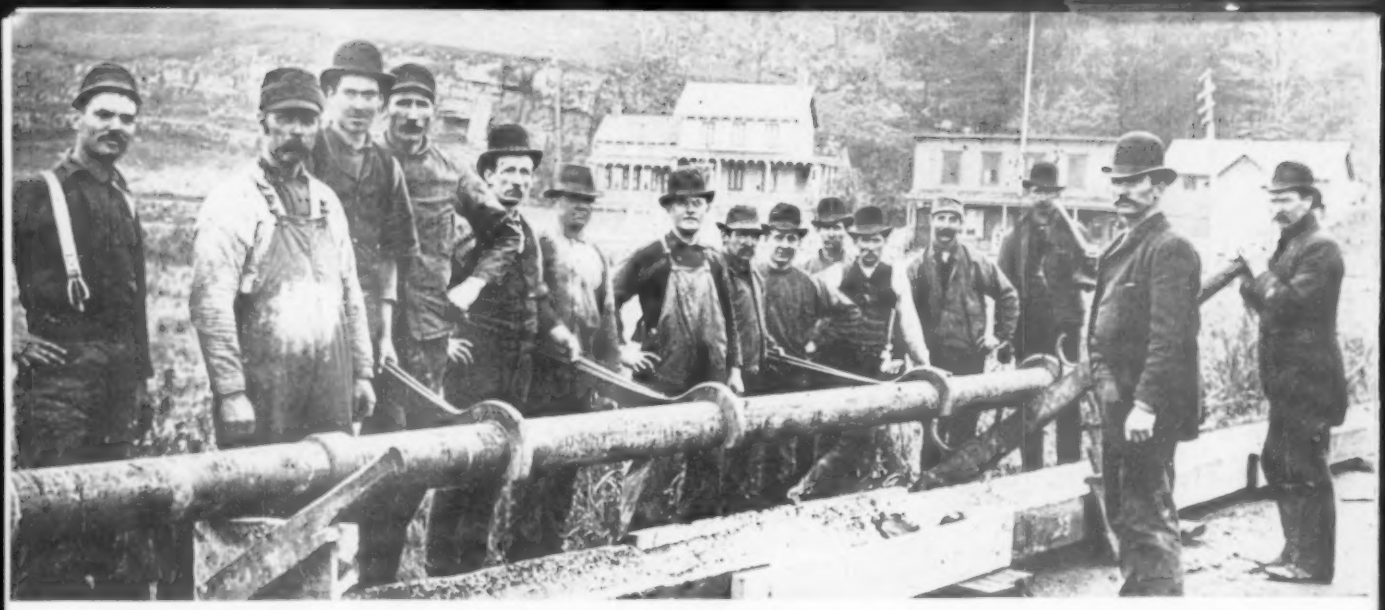
Utility promotion of space heat, in general, has been mapped out along several lines. Here are some of the specific steps urged at the conference:

- Utilities should use only electricity in heating their own buildings and plants.
- They should start promoting electric heat among company employees. (When Georgia Power Co. decided to reverse its attitude about space heat sales in 1952, it had to spend the first year convincing 5,000 employees that it really meant business.)
- Builders should be enlisted in the promotional program. (One utility says it now emphasizes electric heat at home shows, figuring sales of other appliances will follow without much promotion.)
- "Budget billing" should be provided, to enable the customer to spread his winter heating costs over the whole year.
- Utilities should try to sell electric heat for newly-built dens, playrooms, bedrooms, etc., in local basements and attics. Such new rooms often contain no outlets from existing heating systems, and thus represent a logical inroad for electrical heating, according to Paul M. Augenstein, general manager of GE's room air-conditioner department. He figures that ½-million to 1½-million new rooms are finished in existing homes each year.

Of the utilities already promoting space heat, most are investor-owned, straight electric companies, according to Electrical World. And there are almost as many in the North as in the South.

Furthermore, says the magazine, about 86% of them compete with natural gas, and more than half of them with No. 2 fuel oil.

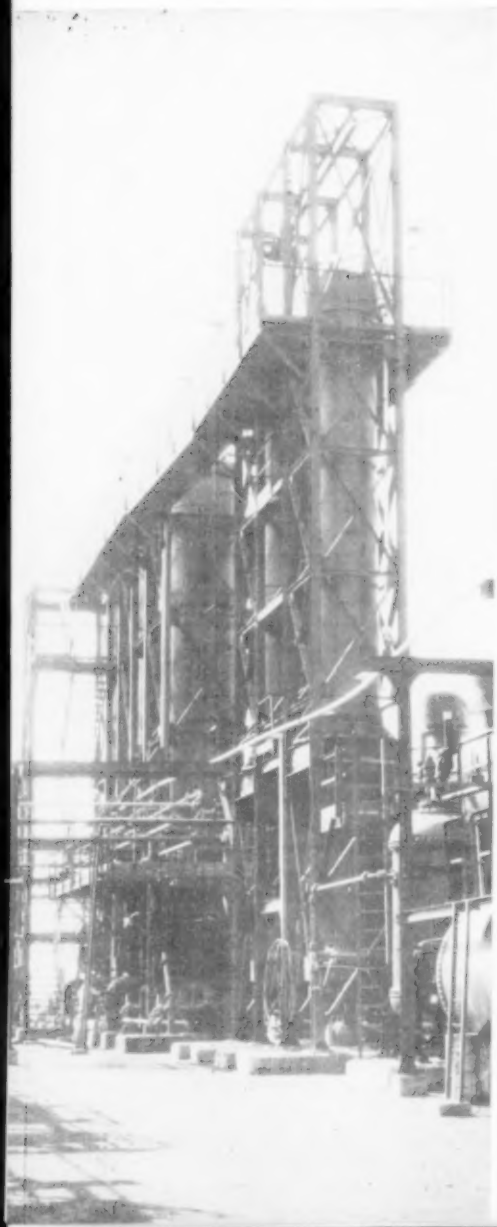
The magazine says that at least 15 more utilities will swing to all-out space-heat promotion next year.



PIPELINE CONSTRUCTION in the 1890s. This crude line in New Jersey is about to be lowered into forms for encasing in concrete.

Jersey Looks Back Before S

BOARD ROOM at 26 Broadway. From 1885, financial control of the old Standard Oil empire was centered here. The room was used until Socony Mobil left 26 last year.



HYDROGENATION plant at Standard refinery made antiknock news in 1930.

MULE TRAINS were all that were available to haul drilling equipment in 1926.

ULTRAMODERN service station—of 1926.

Starting Another 75 Years of Growth

Standard Oil Co. (New Jersey) will celebrate its 75th birthday next year by telling people how it has served them in the past—and how it can be relied upon in the future.

As a business leader during the years of the country's greatest industrial expansion, the company thinks the story of its growth should be told to the public.

A special issue of the company's publication, The Lamp, will use pictures such as those shown on these pages to help trace the forces that made the company the leader that it is today.

On television, and in other advertising, the company will stress (1) that abundant energy is necessary to progress, and (2) that the American competitive system, or "people's capitalism," is the way to get that energy.

CANVAS CANOPIES probably didn't do too good a job of protecting delivery-truck drivers from bad weather. Standard used these trucks in Argentina in 1912.

WESTERN OIL COUNTRY saw lush pools brought in by Jersey subsidiary, Carter Oil Co. Here are its wells near Shumway lease.

What's New / IN THE INDUSTRY

FTC Attacks Gulf's Merger with Warren

The government—in its first anti-merger case involving the oil industry—has moved to break up Gulf Oil Corp.'s acquisition of Warren Petroleum Corp.

A Federal Trade Commission complaint against Gulf last week said that the merger threatens to hurt competition in the natural gas liquids field, where Warren was the nation's largest independent producer.

Gulf, however, says that although both companies are members of the oil industry, they have never been competitors. W. K. Whiteford, president of Gulf, says: "Gulf's purchase of Warren has had just the opposite effect than that of reducing competition. It has put Warren in a position to be more strongly competitive with various large integrated oil companies which are active in the liquefied petroleum gas and natural gasoline fields, and it has enabled Warren's shareholders to diversify and gain greater security for their investment.

"The effect on the Gulf organization was not to remove a competitor but to add to our line of products."

Meanwhile, FTC is investigating several other recent oil company mergers. These cases, numbering about four, have not yet reached the legal complaint stage. But the Justice Dept. and FTC appear to be pushing anti-merger cases, and the oil industry is apt to get close scrutiny.

•

100,000-Ton Tanker

A. S. Onassis, Greek shipping magnate, has finally firmed up his long-discussed order for a 100,000-ton tanker (PW—Nov.9'56,p28).

The contract was signed last week by Capt. Granville Conway, president of Victory Carriers, Inc., one of the firms in the Onassis group.

Bethlehem Steel Co.'s Quincy (Mass.) shipyard expects to deliver the vessel by June, 1960. It will be 940 ft. long and 132 ft. wide, and will carry about 825,000 bbl. of crude. It will outweigh any other ship now afloat or under construction.

The $55-million mammoth will operate from the Persian Gulf to the U.S., via the Cape of Good Hope, according to Conway. It will use the Suez Canal when steaming empty.

Twin steam turbines, delivering 43,000 hp., are expected to push the vessel at a speed of more than 17 knots.

The contract signed last week also includes an order for two 46,000-ton tankers. In return for this U.S. construction, the Maritime Administration has given Onassis companies permission to transfer to foreign flag 11 T-2s, an 18,150-ton tanker, and two Liberties.

In a separate action last week, Maritime gave Onassis permission to have two 47,750-ton tankers built by Sun Shipbuilding & Drydock Co., for foreign operation. Stavros G. Livanos, father-in-law of Onassis, received permission to have one tanker of the same size built in the same yard.

•

Still another court review of the venerable "Detroit case" has just been scheduled for early next year. The U.S. Supreme Court agreed this week to take another look at the price discrimination case between the Federal Trade Commission and Standard Oil Co. (Ind.), which has dragged on for 16 years.

The court's decision to hear the appeal has raised speculation that it might reverse the latest lower court ruling in favor of Indiana Standard (PW—May11'56,p10). Legal sources point out that about 90% of government appeals to the high court are upheld.

•

Add this item to your list of rising costs: Increased rail rates.

The Interstate Commerce Commission has authorized a 7% hike in eastern freight rates, and a 5% boost for western lines. An application to increase southern rates is still pending.

•

Superior Oil Co. and two of its attorneys last week were found guilty of illegal lobbying activities in connection with the natural gas bill.

A U.S. District Court fined Superior $10,000 while Elmer Patman and John J. Neff were fined $2,500 each and received suspended 12-month jail sentences.

•

California's Proposition 4—the oil and gas conservation act that was defeated by a 4-to-1 ratio in the November election—was an expensive proposition.

Sponsors of the pool-unitization measure spent $3.4-million, according to reports filed in the secretary of state's office. Most of the money was put up by major oil companies, except for Union Oil Co., which opposed the plan. Opponents of the proposition, including Union, spent $1.4-million.

•

The Interior Dept. is bringing in more industry consultants to advise on the emergency oil-for-Europe plan and to help prevent serious dislocations in the domestic petroleum industry.

Those named include Minor S. Jameson, Independent Petroleum Assn. of America, Washington; Charles J. Hedlund, manager of the coordination and petroleum economics dept., Standard Oil Co. (N. J.); Robert Sears, Phillips Petroleum Co., Bartlesville; James O. Coble, economics dept. of Socony Mobil Oil Co., New York; and Wilfred G. Donley, economic counsel for the Standard Oil Co. of California, San Francisco.

More consultants are expected to be brought in as part of the effort to give all industry segments a voice in conduct of the emergency program.

LeRoy Menzing: New PW Editor:

LeRoy Menzing has been named chief editor of Petroleum Week.

He succeeds Herbert A. Yocom, who becomes consulting editor. At the same time, Richard M. Machol was promoted from assistant managing editor to managing editor.

Yocom, who is recuperating from a long illness, has been chief editor since publication of PETROLEUM WEEK began July 8, 1955. Previously, he had been editor-in-chief during the formative stages of the publication.

Menzing, formerly oil editor of the Ft. Worth (Tex.) Star-Telegram, joined PETROLEUM WEEK as senior editor on May 14, 1956.

Machol, a member of the McGraw-Hill organization for 20 years, was appointed assistant managing editor when PETROLEUM WEEK began publication.

". . . they presented unto him gifts; gold, and frankincense, and myrrh."

Window by Charles J. Connick Associates (Boston) in St. John's Episcopal Church, Newtonville, Mass. • Copies for framing on request • (20-1)

Jones & Laughlin SUPPLY DIVISION • TULSA

Why Are Fewer Homes Being Built?

The fall upturn of homebuilding that was predicted by government housing experts, and hoped for by the builders themselves, never arrived. It is now clear that the optimistic forecasts of 1.3-million starts for 1956 are not being met, and that the actual figure will be only 1.1-million units at best. And some private forecasters believe that 1957 may even be a bit lower. This, of course, could mean fewer new customers for oil heat.

* * * *

Builders place the blame for this situation entirely on restrictive credit policies. They say they are cutting down on starts because they cannot get commitments from the credit institutions to take as many new mortgages as would be required, if building went ahead full steam.

There's certainly no doubt that money for homebuilding is generally scarce. There are plenty of opportunities to make other loans at rising interest rates. And the banks and insurance companies are doing so. Even the new higher interest rates of 5% on home mortgages insured by the Federal Housing Administration can't really compete with other offerings.

So there's no doubt that either a change in the general money situation or a further boost from government would help housing in 1957.

* * * *

But there is real doubt that even these would put starts back up to 1.3-million a year. The reason is that, fundamentally, it is not merely credit restriction, but the changing nature of the housing market itself that prevents a return to mass building.

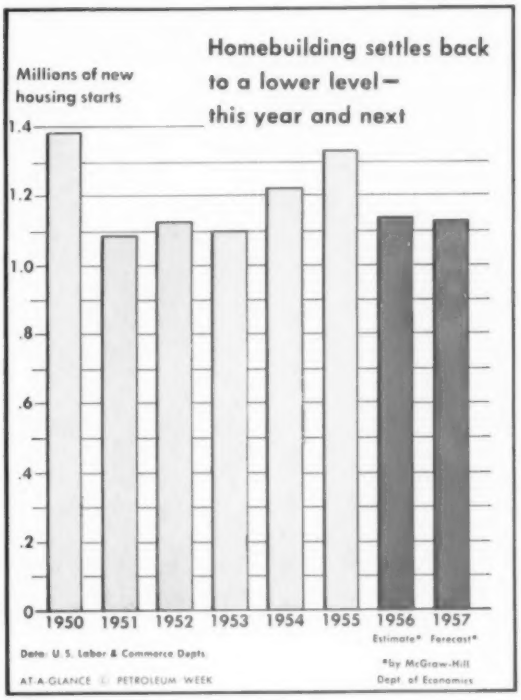
Several years of high building activity have wiped out the backlog of needs for shelter that was so large at the end of the war. Nowadays, the real market for new housing consists primarily of growing families who want bigger and better homes.

This new market is more difficult to sell. Prospective buyers want far more than the rapid, cheap construction that has made up such a large part of the housing boom in recent years.

This is shown by recent surveys, which indicate that a high proportion of families want better housing than they have now—and more attractive styling. But while some people can easily afford to move up on the housing scale, many are inclined to look for bargains.

The builders are not well set for this new market. Few of them have paid the close attention to costs that is necessary if they are to offer bargains in the larger, more attractive houses. And even the most efficient of them find that costs are rising rapidly.

Land costs are up. Suburban towns are making the new housing developments bear more of the costs of new utilities to be installed. Materials and labor are up too. Yet this new type of buyer will not compromise with shoddy materials, unattractive designs, or inconvenient locations.



The only way to meet these high costs is to employ more efficient construction techniques. But so far, gains in this direction have been small.

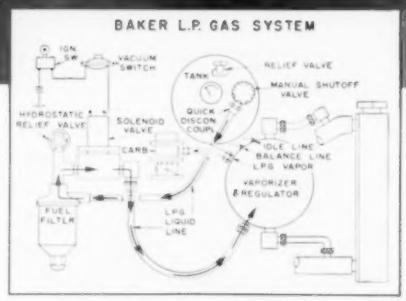
* * * *

Thus, it appears that the general slackening in demand, and the failure of the building industry to be more efficient and meet the needs of a changing market, may have had at least as much to do with the drop in housing as has tighter money.

If credit eventually gets easier, the market should widen, and the number of new starts increase again. But in the meantime, the builders face a challenge that is new to most of them—how to design and sell houses to people who do not really need them.

On the brighter side, the new houses will be bigger, on the average. Which means that, though there'll be fewer built, there's a good possibility that those with oil burners will be using more oil to heat more space.

BAKER *offers LP gas fork trucks in 2000 to 7000 lb. capacities*



Arrows trace the flow of LP gas from the tank through the filter to the vaporizer and regulator before it enters the engine. The hydrostatic relief valve opens the system before dangerous pressure is reached in event of high ambient temperature changes. Automatic fuel shut-off is provided by solenoid valve and vacuum switches when engine stops. For maximum efficiency, the vaporizer preheats the LP gas before it passes to the regulator and the regulator reduces the pressure before the gas enters the carburetor.

The complete Baker line includes the BAKER LP gas fork trucks for those desiring the cost savings, cleaner operation, and other advantages provided by liquefied petroleum gas.

The Baker LP gas truck is powered by an engine specially designed for LP gas, not just a conversion unit. The special LP engine is provided with high compression head for maximum efficiency. Among the features are a special cold manifold and hot thermostat for cooler operation. Stellite-faced exhaust valves and solid Stellite inserts assure greater dependability and longer life. Complete vaporization and more efficient combustion mean lower oil consumption, less down time and reduced maintenance costs due to minimum cylinder wear. Fuel tank conveniently located behind the driver can be removed and full tank installed in less than a minute.

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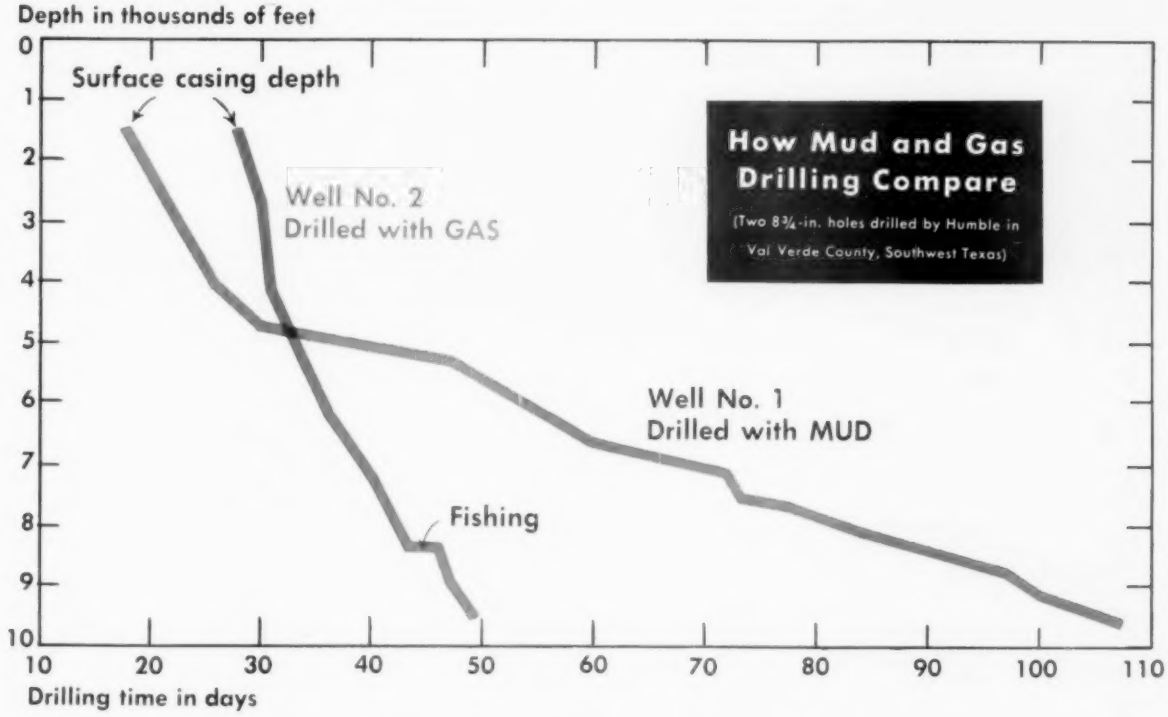

Air and Gas Drilling Could Boom

Air and gas drilling has reached the point where a major expansion in use could result if one or two more problems were solved.

It's estimated that fewer than 1% of the total number of rigs operating in the country are now drilling, or can drill, with air or gas. While the number of such air or gas drilling rigs (about 25) is low, a gradual increase in use of the technique is expected over the next few years. But if some of the limiting barriers are hurdled, the increase could shoot sky-high.

The prime advantage of air and gas drilling is operational savings—through faster penetration and longer bit life, among other things.

The rate of penetration, in many instances, has been increased by more than 50% over conventional drilling. The number of bits needed, conversely, has dropped by more than 50%.

Humble Oil & Refining Co. found penetration rates and bit life markedly increased in experimental air and gas drilling the past three years in West Texas, Southwest Texas, North Texas, and New Mexico. During this period, Humble used gas at certain stages in drilling seven wells and air in nine wells.

A report on results was presented at a recent meeting of the American Institute of Mining, Metallurgical & Petroleum Engineers by George E. Cannon and Ralph A. Watson, Humble engineers.

In addition to faster penetration rates and longer bit life, the Humble engineers said rotary drilling with air or gas also can improve drilling efficiency when going through sections in which drilling mud would be lost, by reducing rig time, mud costs, and casing costs.

In Val Verde County, Tex., last year, Humble used gas drilling in two Vinegarone field wells, with a total of 12,195 ft. being drilled by this method, Cannon and Watson reported. Gas from gas wells in the field was used.

Gas drilling was tried in an effort to increase penetration rates in the hard shale. A well drilled with mud during the same period had averaged 89 ft. per day in drilling from 1,500 ft. to 9,500 ft. Drilling of a similar interval with gas resulted in an average of 360 ft. per day (chart).

The reduction from 90 to 22 total days represents a 68-day saving in rig time due to drilling with gas. The Humble engineers reported that it was necessary to mud up the first gas-drilled well slightly below 5,800 ft. while fishing for a bit which had come unscrewed.

A recent test involving three air-drilled wells and one mud-drilled well in Bird Creek field, Tulsa County, Okla. (picture, page 23), also showed faster penetration rates for the air drilled tests, though total times were about equal, due to difficulties arising from water seepage.

Experience indicates that the faster penetration achieved with air and gas drilling is due to several factors:

- Cuttings are picked off the bottom more rapidly by air, thereby minimizing the regrinding or recutting of rock particles.
- Rock chips fractured by the bit teeth are thrown into the air stream instantaneously, giving faster penetration.
- Some formations drill slower when wet, and using mud wets the formation.
- The viscosity of mud slows drilling considerably.
- Air or gas drilling takes hydrostatic pressure off the formation, so that the bit cuts at approximately atmospheric pressures; the relative hardness of the metal versus the forma-

NEW TYPE COMPRESSORS, such as these Le Roi units, are helping to provide the varied pressure and capacity requirements operators need in air or gas drilling.

tion becomes the chief penetration factor.

• Weights applied to bit surfaces are more exact in the dry hole, with no reduction through buoyancy and fluid pressure.

Air and gas drilling is most suited to hard formations, cavernous zones, dry areas, cold climates, and low-pressure zones.

The savings in bit costs are considerable when air or gas drilling is used in hard formations. Other savings result when time spent in making connections is not an appreciable part of total drilling.

Water for mud drilling can be a major problem in arid areas. Such difficulties are eliminated with air or gas drilling. Extremely cold climates necessitate elaborate, expensive precautions against mud freezing, which are unnecessary with air or gas.

The lost-circulation problems in the San Juan Basin were a major reason why operators turned to air and gas drilling in that area, with payoff results.

Some of the major factors limiting wide use today of air or gas drilling are formation water, sloughing formations, and high pressures.

When water, in certain amounts, is met in air or gas drilling the powder-dry cuttings will ball up and stick the bits and drill pipe. This can be overcome, at times, by sufficient pressure. It also can be remedied by injection of just enough water to wash the cuttings off the pipe. Too much water, however, nullifies the air pressure, and the cuttings would not be lifted out. If the formation water is present in too heavy concentrations, the only present alternative is for the operator to switch to mud.

There has been considerable experimental work to solve the water problem. All sorts of chemical means, plastics, and cement mixtures have been tried in search for a solution.

Some have given thought to trying to develop some sort of ceramic material that would fuse instantly to the well bore, creating a sort of "china coating" in the hole to seal off the water zones. And there is some thought being given to freezing the formation water at the bore face, possibly by use of freon gas or liquid oxygen.

Another big problem in trying to seal off water zones with the dry lost-circulation materials on the market today is that no adequate equipment is available that would enable the placing of the dry material through an air flow.

Cannon and Watson reported that no particular difficulty was experienced in mudding up a hole after gas drilling, although there was a tendency for shale to slough in for a period of time after mudding up was effected. Some air and gas drilling contractors report, however, that some shales heave without any moisture.

The absence of a fluid column in air or gas drilling makes high-pressure zones more dangerous, though some precautions can be taken. Where abnormally high pressures are known to exist, however, air and gas drilling is not ventured. The danger of blowout is too great.

Hole deviation also plagues air or gas drilling.

Hole deviation with air seems greatest in broken formations, and achieves sharp angles in a short span of drilling. Little deviation has occurred in solid sand or shale sections.

Humble found hole deviation to be a major problem in the Vinegarone wells. Because of the known tendency, three relatively large, 8-in.-diameter drill collars were run in the 8¾-in. holes on the bottom of 7-in. drill collars. Even so, Cannon and Watson said, it was necessary to reduce bit weights to 6,000 lb. to control deviations after drilling 3,000 or 4,000 ft.

In the second gas-drilled well, deviation had gradually increased to a maximum of 9¼ degrees by 9,000 ft.

It seems generally agreed now that weight on the bit and the formations encountered are the chief elements contributing to deviation. Corrective measures are basically the same as they are with mud—reducing the weight, and using other crooked-hole methods.

The danger of fire or explosion also is greater when air or gas drilling is used.

Precautions taken with gas drilling mainly involve possible leakage around the wellhead. Rotating strippers are now available to provide a satisfactory seal around the kelly. Gas with cuttings is piped to a safe distance from the well, and burned. Fans provide air circulation under the derrick floor if natural currents are not present.

When drilling with air, the possibility of fire or explosion exists either down the hole or in the surface piping —if entrance of formation gas results in a combustible mixture. Ignition could be caused by a spark resulting from cuttings scraping the drill pipe.

Humble made a study which indicates that little danger to equipment normally used in rotary drilling should be expected as a result of down-the-hole explosions. Cannon and Watson said there is little risk to personnel if caution is exercised to keep them away from the stream of hot gases that would issue from the flow line after such an explosion.

The Humble engineers added that it is believed that an explosion itself would not cause melting of subsurface equipment, but that such melting would result from a fire that would be maintained as long as circulation provided a combustible mixture following ignition.

Optimum injection rates and pressures, and the amount of compressor capacity needed for air drilling, are beginning to crystallize.

Air compressors are, of course, a chief item of equipment in air or gas drilling.

Success of air or gas drilling often has been hampered by lack of sufficient volumes to clean the hole adequately at optimum penetration rates. Experience indicates that a velocity of 3,000 ft. per minute is required to lift returns up the annulus satisfactorily. Humble found that gas circulation rates of 2.2-million cu. ft. per day were required to maintain a clean

hole; gas pressure at the standpipe did not exceed 100 psi.

Cannon and Watson said 125 psi. maximum pressure was adequate in many cases for air or gas drilling. But higher pressures are useful, if not necessary, particularly for clearing water out of the hole, or for cleaning the bit at deeper levels.

Air or gas requirements can be reduced by the use of smaller hole sizes.

Current application of available equipment is another major problem for air and gas drilling. New equipment is helping to ease this problem.

Development on compressors and drilling heads is moving ahead swiftly, as is development of dust collectors. (Le Roi Division, Westinghouse Air Brake Co., has just announced a new line of air drilling compressors.)

Up to now, three general classes of compressors have been used. These are (1) portable air compressors, (2) industrial type, light-duty, stationary compressors, and (3) heavy-duty high-pressure, stationary compressors. All three types have proved unsatisfactory, for various reasons, including expense.

Equipment manufacturers have been hindered, on the other hand, by lack of sufficient operational data with which to devise new equipment.

Air or gas drilling is still comparatively new, though it can be traced back to 1932, when air drilling was attempted—unsuccessfully—in East Texas.

Some degree of success was achieved in exploration drilling with air about five years later. But this involved drilling only a few feet, and air or gas drilling did not become much of a factor, even in exploration, until 1950 and 1951.

Air or gas drilling for production began to move forward in earnest the following two years, with several experimental tests drilled to depths ranging from 1,300 ft. to 6,000 ft. Since then, one well has been drilled with air to just below 11,000 ft. and another, with gas, to 13,865 ft., another, with gas, to 13,865 ft.

The big impetus to gas drilling came from the San Juan Basin, in northwestern New Mexico. A majority of the early wells drilled in the basin were completed in the Mesa Verde formation, which, experience proved, was difficult to drill with conventional rotary tools. Lost circulation was a major problem.

In 1951, El Paso Natural Gas Co. used gas to blow cuttings out of a test drilled into this formation. A new drilling method was evolved in which a conventional rotary drilled to the top of the formation using mud, and then was switched to gas, instead of using the usual cable tool at that point.

The switch saved about 20 days, plus the expense of moving in cable tools. More than 350 of the 600-plus Mesa Verde wells now tied into El Paso's gathering system subsequently were drilled in this way.

DRILLING WITH AIR in a recent demonstration near Tulsa resulted in a penetration rate of 65½ ft. per hour. Three Schramm compressors supplied the air for the test.

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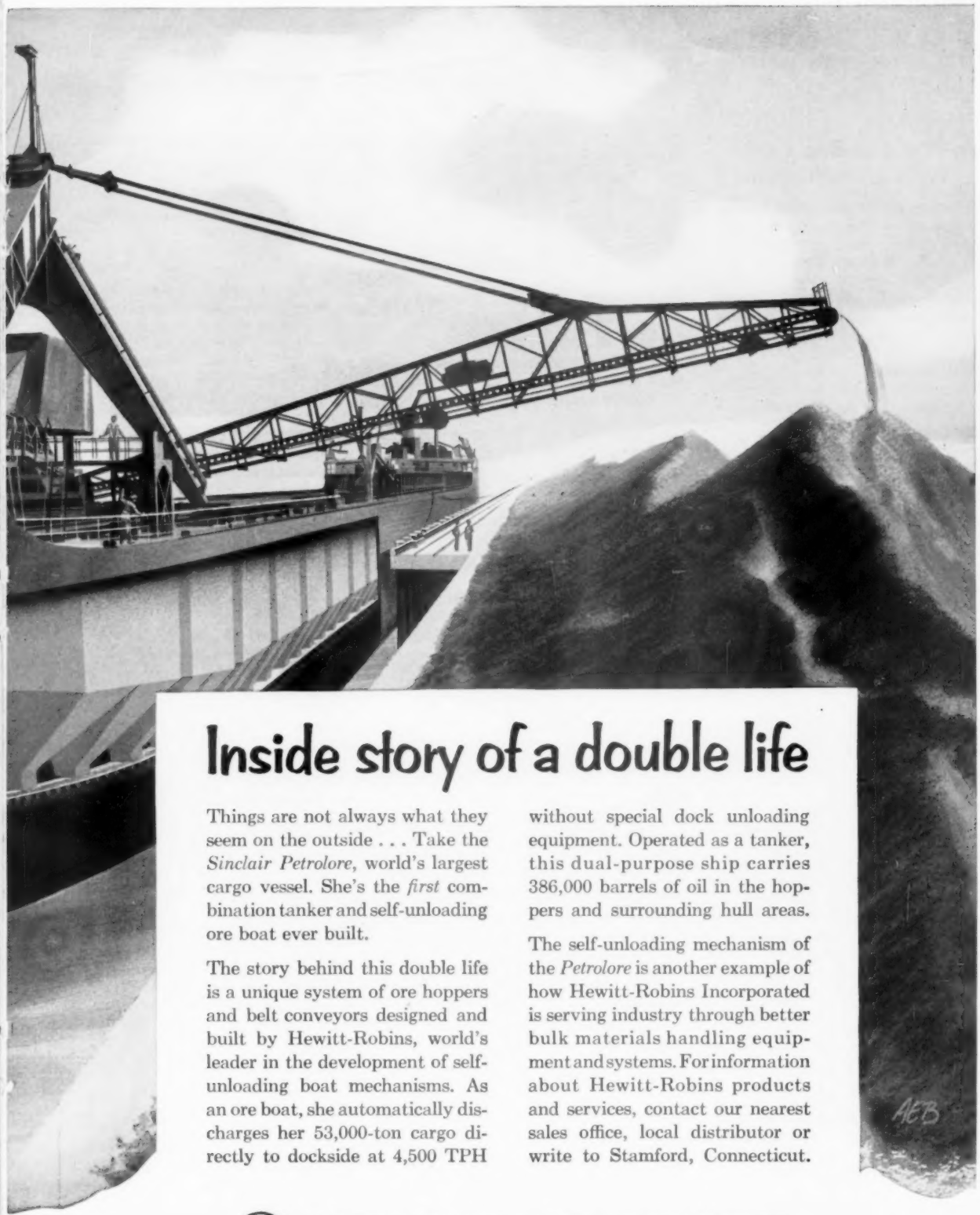

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

Two Wells at One Time From Same Platform?

Offshore operators are weighing the idea of drilling two wells simultaneously from the same platform.

In discussing design features of Mr. Gus No. 2, offshore platform now under construction, J. E. Steele, design chief for Bethlehem Steel Co., shipbuilding division, told Houston engineers last week that such a possibility is being considered.

Steele said a second drawworks and rotary table could be accommodated on Mr. Gus No. 2, though some problems would have to be solved. He added that drilling two wells at one time would result in "considerable savings."

E. C. Rechtin, general manager for the Gulf Coast district of Bethlehem's shipbuilding division, told the engineers that offshore operators are still faced with an old basic problem—hurricanes.

Rechtin said it would be prohibitively costly to build a mobile drilling platform that could withstand the type of hurricane that might be expected once in 100 years. "Whether we can accept a 25-year hurricane as a criterion of design," Rechtin said, "is a problem for management and the insurance companies."

•

New Mexico Allowable Up

New Mexico's Oil Conservation Commission has increased the January unit allowable by 2 b/d to 42 b/d, boosting the state's total allowable by 11,306 b/d over December. The average will be 308,750 b/d.

Purchaser nominations for January totaled 199,590 b/d, up 14,232 b/d over December.

•

Louisiana Up Again

Louisiana, now the country's second-largest oil-producing state, is likely to increase its margin over third-place California even more in January (PW—Dec.7'56,p24).

Louisiana moved into the No. 2 spot when its production reached 966,400 b/d for the week ended Dec. 7, compared with California's 949,100 b/d.

Conservation Commissioner John B. Hussey says Louisiana production will reach a new high of about 1-million b/d, though the December allowable of about 975,508 b/d has been retained. He explained that new production probably would run about 20,000 b/d.

•

Properties Change Hands

W. B. Cleary, Inc., Oklahoma City, has sold its interest in 19 leases in ten Oklahoma counties to Southwestern Exploration Consultants, Inc., also of Oklahoma City.

Two gas wells and 27 oil wells were involved in the deal, with an average interest of 39.86% per well.

Lost Canyon Uranium & Oil Co. has purchased a 10% interest in New Mexico Natural Gas Co. The gas firm owns interests in 45 gas wells and 35,000 acres in San Juan County, N. M.

Merger of San Juan Exploration Co., of Dallas, and Producing Properties, Inc., of Houston, has been completed through exchange of stock.

Headquarters of the continuing company, Producing Properties, has been set up in Dallas. The company now owns 261 wells in Texas, New Mexico, Louisiana, Oklahoma, Kansas, and Canada, with production of 2,200 b/d.

Stockholders of Britalta Petroleums, Ltd., have approved a plan to purchase Wilshire Oil Co., of Midland, Tex., through an exchange of stock.

Britalta is a Canadian corporation engaged in oil and gas exploration. Wilshire, which will become a U.S. operating subsidiary, engaged in similar work in West Texas and the Rocky Mountain area.

Occidental Petroleum Corp., of Los Angeles, has purchased half of the North Dominguez field (Calif.) production held by J. K. Wadley, of Texarkana. The purchase includes Wadley's interests in 13 wells, producing more than 1,000 b/d. Occidental will be operator for itself and its associates, who bought the other half interest in the wells and leases.

Big Chief Drilling Co. and W. W. Whiteman, Jr., both of Oklahoma City, have acquired 300 producing and water-injection wells in Allen and Neosho Counties, southeastern Kansas. Sellers were Joe Aylward, of Wichita, Gordon Willis, of Chanute, and associates.

Present production is about 500 b/d. The buyers also acquired 4,400 acres of leases.

•

An appellate court in Texas has ruled that a vacancy of nearly 165 acres in Ft. Chadbourne field, Runnels County, belongs to the state.

A "vacancy" is excess acreage found between regular surveys. There is no drilling on the tract, but there is production on each side.

The ruling by the Third Court of Civil Appeals set aside a ruling of the Land Commissioner and a lower court. The vacancy application was filed by Luther Lynn, who sought a lease for the state. He was opposed by Fred M. Manning, Inc., a group of oil companies, and by land and royalty owners.

•

The average wellhead price of natural gas in the Panhandle field, Tex., is continuing to climb.

The semiannual report of the Texas Railroad Commission shows that the price was 9.6700¢ per Mcf. at a base pressure of 14.65 psi. last month. This compares with 9.2332¢ per Mcf. last May and 8.9073¢ per Mcf. a year ago.

An average price last month of 10.8251¢ per Mcf. at a base pressure of 16.4 psi., compared with 10.3361¢ last May and 9.9713¢ a year ago.

•

Alberta may produce a record 447,000 b/d this month, according to an official of the Provincial Mines Dept.

Statistician C. W. Jackman reported that November production in the province averaged 397,000 b/d. He said that "there probably is a market right now for all the oil we could produce, if transportation could be effected."

•

Pennsylvania is setting the stage for offshore oil drilling in Lake Erie.

Gov. George M. Leader told the Interstate Oil Compact Commission in Miami Beach last week that the state is employing a large number of geologists to study the area.

He added that a bill will be offered

in the 1957 legislature to make the Dept. of Forests & Waters the leasing agent.

•

The California State Lands Commission has called for bids for lease of a 5,600-acre offshore tract near Point Mugu, Ventura County.

The land offered for lease is not within the known geologic structure of a producing oil or gas field. Bids are due by Jan. 18, at the commission's Los Angeles office.

•

Drilling Highlights

West Texas—W. E. Bakke No. 3 Crady, section 22, block A-44, PSL survey, Andrews County, has been dually completed in two new producing horizons for the Bakke field. The well produced 276 b/d through ¼-in. choke from Pennsylvanian perforations at 8,954-84 ft., 9,006-12 ft., and 9,022-28 ft. It also flowed 204 b/d through 1-in. choke from Wolfcamp perforations at 8,514-60 ft.

Utah—U.S. Smelting, Refining & Mining Co. No. 1 Ohio-Navajo, section 9-43s-21e, San Juan County, recovered gas at the rate of 5-million cu. ft. per day on drillstem test in the Hermosa at 4,842-910 ft. A small amount of distillate-cut water also was recovered. The indicated discovery, 6 mi. northwest of the Boundary Butte field, is the most westerly production to date in the Paradox Basin.

Canada—Cities Service Oil Co. No. 16-29 Alsike, 1 sd, 16, section 20-49-4w5thn, has been completed as another Cardium discovery in the Keystone area of Alberta. The well, about 12 mi. east of the Pembina field, flowed 101 b/d through perforations at 4,049-79 ft.

Louisiana—Continental Oil Co. No. 1-A OCS 0128, state lease 948, discovery in the Grand Isle Block 40 area, Jefferson Parish, has been dually completed. The well flowed 299 b/d of 33-gravity oil through 10/64-in. choke and perforations at 9,956-78 ft. It was then dually completed through perforations in lower sands at 1,412-22 ft., producing 32.6-gravity oil at the rate of 256 b/d through 8/64-in. choke.

New Mexico—Anderson-Prichard Oil Co. has completed two discoveries east of the Bisti field, San Juan County. No. 1 Heirs of Ko-Sa, section 23-25n-11w, gauged 300 b/d through ¾-in. choke. Production is from Gallup (Cretaceous). No. 1 Be Gay, section 25-25n-11w, was completed for 3,432,000 cu. ft. of gas per day, also from Gallup. The oil discovery indicates an eastward turn to the trend of production at Bisti, and adds more than 5 mi. to the trend (PW—Dec. 14'56,p21).

Texas Gulf Coast—Shell Oil Co. No. 1 Glenn Sunderman, CTRR Survey, A-154, 1 mi. southwest of the Chesterville Field, Colorado County, has been completed as a gas-distillate discovery. The well flowed at the rate of 6.5-million cu. ft. daily, with some 49.9-gravity condensate, from perforations in the Wilcox A3 reservoir at 9,714-36 ft. The new field has been designated as Eagle Lake.

California—Edward Nepple No. 1 SP-Pedro-Nepple, section 6-3s-11w, new pool discovery at the south end of Santa Fe Springs field, Los Angeles County, was completed flowing 202 b/d of 38-gravity oil and 700,000 cu. ft. of gas through 24/64-in. choke. Production is from 9,443-10,152 ft. in the lower Santa Fe sand.

Southwest Texas—Delhi-Taylor Oil Corp. No. 1 Moore, in the Knolle Farms area, Nueces County, was completed for 28 b/d, on pump, from perforations at 5,084-92 ft.

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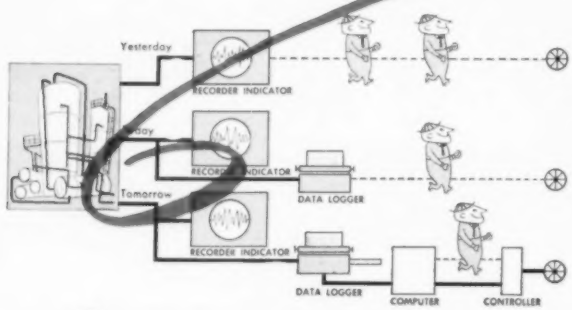
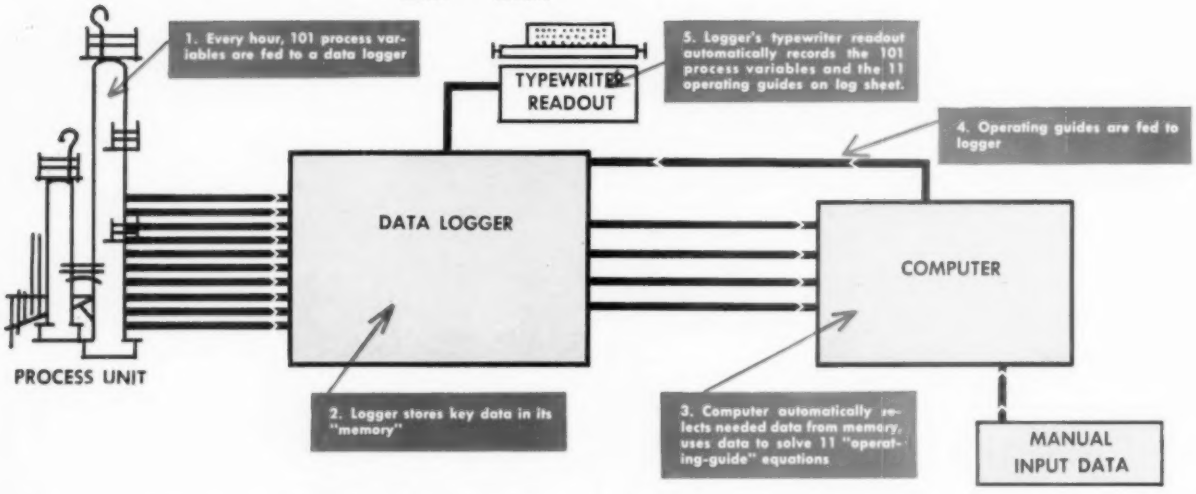
Last month, Petroleum Week summarized progress in refinery automation like this:



Now TOMORROW is here. Phase III in refinery automation—a computer integrated with a process unit—is being engineered by Fischer & Porter Co. for Esso Standard (Cuba). Here's how it will work:


1. Every hour, 101 process variables are fed to a data logger
TYPEWRITER READOUT
5. Logger's typewriter readout automatically records the 101 process variables and the 11 operating guides on log sheet.
4. Operating guides are fed to logger
DATA LOGGER
COMPUTER
PROCESS UNIT
2. Logger stores key data in its "memory"
3. Computer automatically selects needed data from memory, uses data to solve 11 "operating-guide" equations
MANUAL INPUT DATA

Automatic Refinery One Step Closer

The third major step toward a fully automatic refinery—a computer integrated into a process unit—will be taken next year by Esso Standard S/A at its Cuban refinery.

The process-unit computer is now being engineered by Fischer & Porter Co., Hatboro, Pa. It's designed to solve a series of 11 "operating-guide" equations developed by Esso Research & Engineering Co.

The computer will be integrated with a 24,000 b/d fluid catalytic cracker (Esso Research) being built at Esso's Belot (Cuba) refinery. The new cat unit is part of a general expansion program at the refinery (PW—Apr.20'56,p40).

The unit is expected to be on stream next fall.

The significance of this third step in automation is that it is the first use of a computer on a process unit so designed as to permit almost instantaneous "optimizing" of the unit's operation—that is, getting the most favorable return from the unit.

As shown in the smaller chart (above), and described in PETROLEUM WEEK's special report on automation (PW—Nov.16'56,p73), refinery automation has been a gradual, evolutionary procedure.

Modern automation started with the graphic instrument control panel (step I), and went on to the gradual introduction of automatic data loggers (step II) to record process variables in digital form.

The data loggers in use can do a few computations, such as integrating flows. But the computations required to optimize process operations have had to be done by the refinery engineering department, either by tedious hand calculations or on computers. Such computations take much time, sometimes a day or more.

Esso's computer will reduce this computing time to minutes.

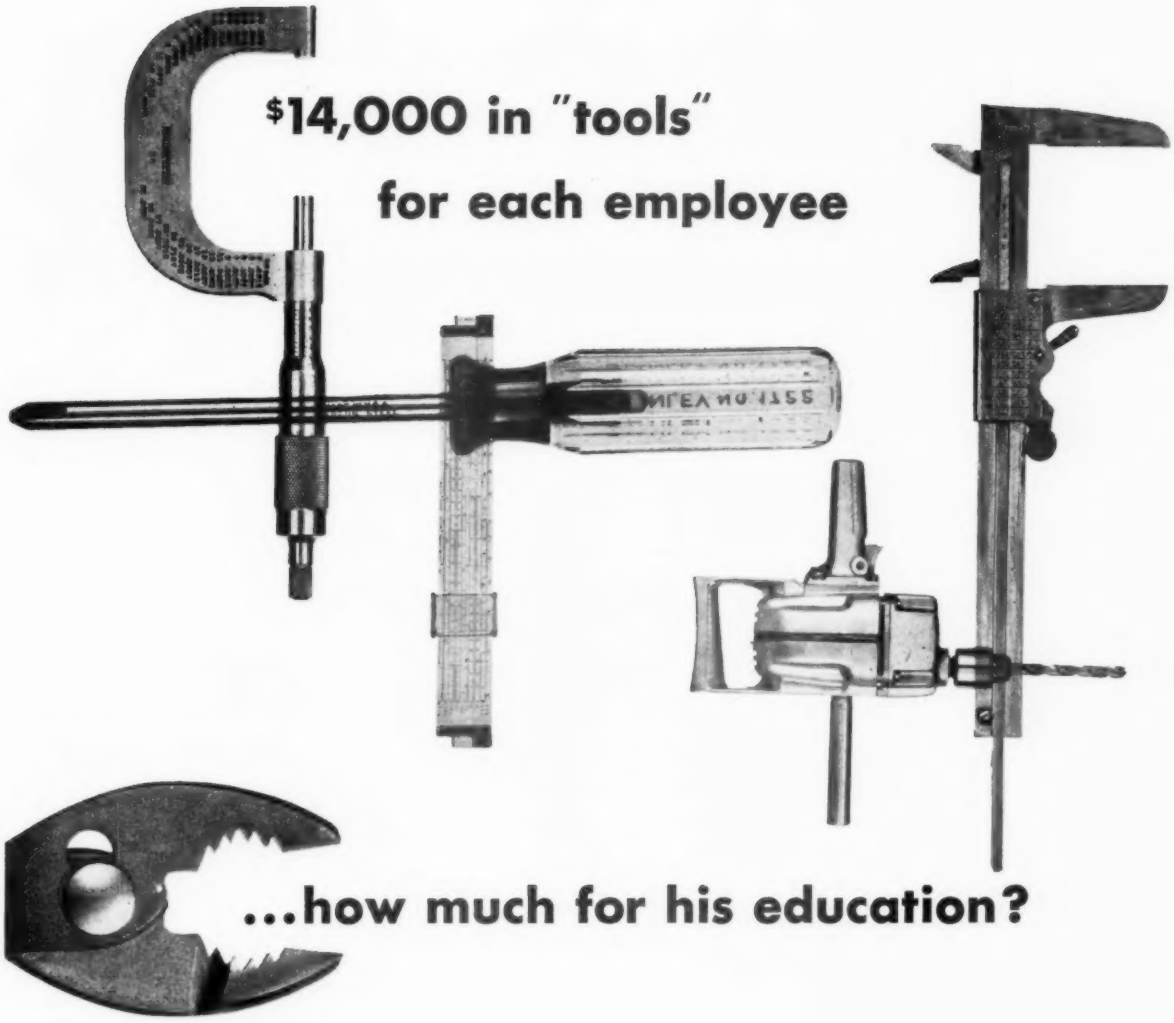
The computer will be used as an additional instrument with an automatic data logger, to compute guides that process engineers need to analyze the operation of a unit.

Such operating guides will be printed out on the logger typewriter readout (drawing, above) every hour. If desirable—during unit upsets, for instance—an even shorter print-out cycle can be used.

Esso Standard's use of the process unit computer is of an experimental nature.

The idea is to determine whether the computations will be of sufficient value to the operators to justify the costs.

Such possibilities are "sufficiently"



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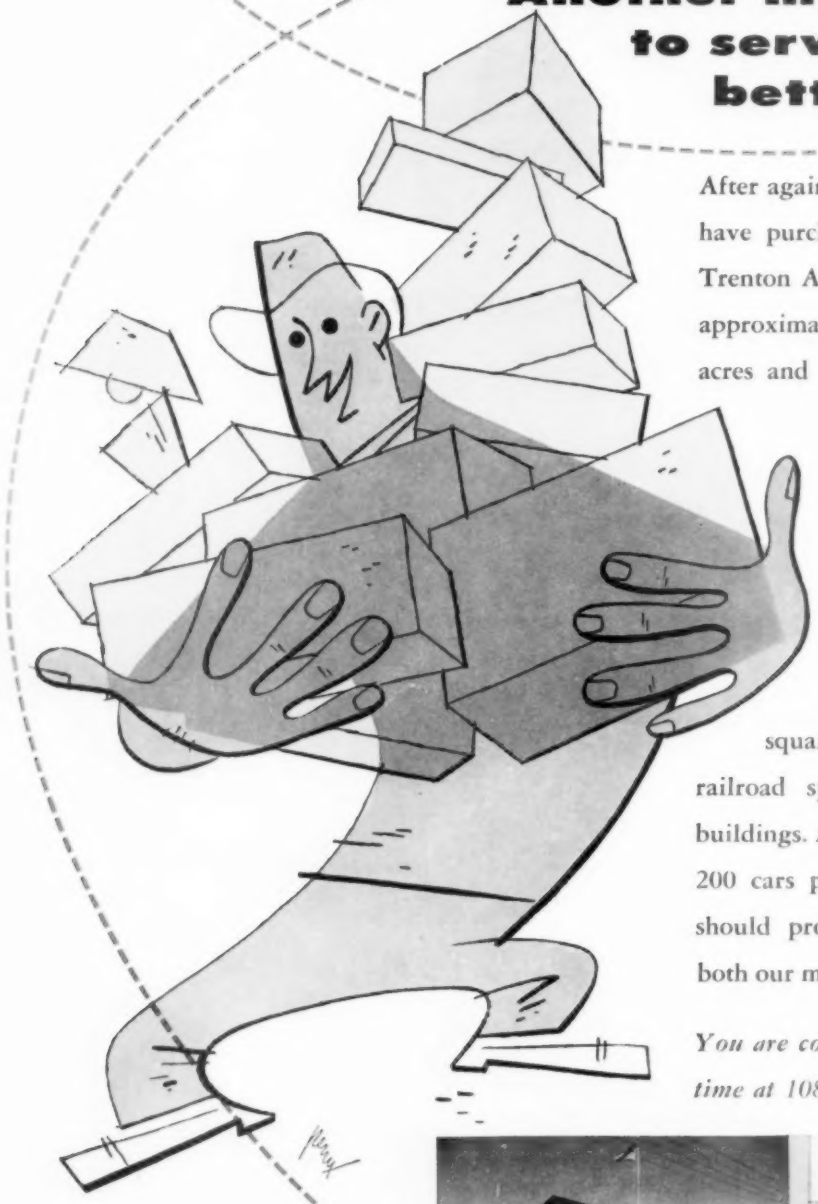

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large and "ample" to justify the trials, says Harry F. Moore, of Esso Research's design engineering division.

The computer, called a Cordinated Automatic Data Logger & Computer, or "Cadlac," by Fischer & Porter, will be a relatively inexpensive instrument, according to Robert K. Stern, vice-president, and Charles H. Taylor, Jr., senior project engineer, of the firm.

The computer will not control the unit. But by providing the operating guides, it will enable process engineers to control the unit far more rapidly than ever before.

The 11 operating-guide equations that the computer will solve are all first-order linear equations. However, the computer is capable of solving differential equations also.

Esso's exploratory use of the new computer, says Moore, may prove that some of the guides are not particularly valuable. But after three of four computations were included in the system, the cost of adding another seven or eight was minor.

Stern and Taylor estimate that unit "control" functions could be added to the computer for about $250 for each variable to be regulated.

The computer will be a general-purpose electronic analog instrument, sequentially programmed so that a minimum number of components, or "blocks," will be needed to solve the 11 operating-guide equations.

Such a design for the computing system is a big factor in its relatively low cost.

The computer is being designed so that the "blocks" will be "time-shared" in solving the equations.

This is how it will work: The programming unit establishes the proper sequence of equations to be solved. It tells the "solving portion" of the computer where to get its information, and how much of the information used in solving equation 1, for instance, should be "retained" for use in solving subsequent equations.

To have built 11 separate "equation-solving" components into the computer would have permitted simultaneous solving of the 11 equations, but would have been far more expensive, and unnecessary.

Another cost-saving feature in the design of the computer was the development of a "random access memory" that makes it possible for the computer to operate with a small "brain."

The memory system, an important part of all computers, is expensive to build. Thus a smaller, but still adequate, memory represents a substantial cost saving.

The random access memory is part of the automatic data logger to which the computer is connected. It works like this:

The logger will have 101 process variables fed to it. These variables are in analog form—3-psi. to 15-psi. air signals representing 15 liquid flows, 6 gas flows, 6 liquid levels, 5 pressure points, and 2 oxygen percentages, plus 67 temperatures fed to it as thermocouples.

Of these analog inputs, 21 will be "stored" in the logger's memory for use by the computer.

The computer feeds the optimum solutions for each of the equations back to the logger as analog signals. The logger, in turn, feeds them to a "digi-coder," which converts the analog data to digital data.

The 11 operating guides are then printed out on the logger typewriter at the end of the read-out cycle—after the typewriter prints the 101 process variables on the log sheet.

What's New
IN REFINING

Socony Mobil Oil Co. will add new process units at four of its domestic refineries next year.

M. W. Kellogg Co. has been awarded a contract to build a 2,435 b/d sulfuric acid alkylation unit at the Buffalo (N. Y.) refinery. Another alkylation unit, 3,500 b/d, will be built by Fluor Corp. at Trenton, Mich. J. F. Pritchard Co. will build a 9,000 b/d catalytic reformer at Augusta, Kan., and a 3,000 b/d reformer and a 3,350 b/d hydrodesulfurization unit at Casper, Wyo.

•

Douglas Oil Co. of California has awarded a contract to Macco Corp. for construction of a $400,000 Unifining unit at its Bakersfield refinery.

The unit is the first in a planned expansion and modernization program to cost a total of $1¼-million. Also included will be a 12,000 b/d topping unit. The unifining unit is planned for completion by mid-1957.

•

Ammonia Chemical Corp. of California will build a $5-million anhydrous ammonia plant near Huron, Fresno County, Calif.

The new plant will be financed by Monterey Oil Co., according to J. H. Finney, president of Ammonia Chemical. The plant will use about 5-million cu. ft. of gas daily at full capacity.

THE SYNTHETIC RUBBER INDUSTRY MOVES AHEAD WITH

HOUDRY DEHYDROGENATION PROCESS

The HOUDRY DEHYDROGENATION PROCESS is the very backbone of the growing synthetic rubber industry. It is a matter of record that every expansion in the production of Butadiene from butane for the manufacture of synthetic rubber has included this commercially-proved, single-step process.

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READY TO ROLL, brand new "Dealer Development Trailers" line up outside Phillips Petroleum Corp.'s Bartlesville (Okla.) office. They

Phillips' Dealer Training Takes to The

"CLASSROOM" with all the equipment of a modern school, has movies and phonograph. In addition, each trailer has plenty of station equipment.

SALES INSTRUCTION is a main part of the training. Merchandising tips on TBA items and motor oils are resulting in more business after school is out.

"Rolling classrooms" in shiny new aluminum trailers are providing Phillips Petroleum Co. with a new answer to the old problem of adequate training for service station dealers.

Phillips has just put 11 new trailer classrooms on the road to take training right to the dealer's door.

Phillips experimented with this kind of mobile dealer education for a short time with two trailers. Dealer reaction was so good that Phillips wasted no time in ordering the new ones. Now the supplier's full-scale fleet is ready to roll across Phillips' 35-state marketing area.

The trailers provide training in every phase of efficient service-station operation.

Trailer-trained dealers get the same kind of "education" offered at Phillips' division-development station, with one big advantage—convenience.

The traveling trailer makes it unnecessary for dealers to take stretches of valuable time off from their station operation.

The course covers merchandising techniques for gasoline, oil, and TBA items; and all phases of personnel and management training.

Both lectures and informal discussions are used to drive home the lessons to the dealers.

will cover all of Phillips' marketing area as . . .

Open Road

Equipment is complete—and up to date.

The trailers are miniature service stations on wheels. Motor oil, tires, credit-card imprinters—even gasoline pumps—have been included as standard equipment in each trailer.

In addition to blackboards and other schoolroom aids, each trailer has a record player and motion-picture projector.

Phillips feels that this equipment is a necessity in getting the training message across to dealers faster and more thoroughly.

At the same time, care has been taken to insure comfort for the dealers who take their training in the traveling classrooms. The trailers are air-conditioned, and fitted with comfortable, upholstered desk-armchairs. The interior lighting in indirect and fluorescent.

When the trailer classrooms roll on, they leave a trail of increased station business and profits, according to Phillips marketing men in charge of the project.

This was the case in the trailer trials in Phillips' Atlanta, Amarillo, and Des Moines marketing areas. And the company expects that results will be the same elsewhere as the trailer brigade rolls on.

What's New / IN MARKETING

Prices Steady In Fair Trade Areas

Retail gasoline prices have remained steady in Massachusetts, in the face of the recent court decision which struck a serious blow at suppliers' ability to enforce fair trade agreements (PW—Nov.30'56,p10).

Early this week, some 43 stations in the Bay State were selling below fair trade minimums. This is an increase of only 5 since the court decision late last month.

At the time, some suppliers were fearful that the weakening of their enforcement power might lead to a complete breakdown of the fair trade pricing structure. If this happened, resumption of price wars was expected almost immediately.

Retail gasoline prices in other fair trade areas have remained strong. The Massachusetts decision appears to have had little or no effect on prices in Rhode Island, Connecticut, New Jersey, or Pennsylvania, where retailers are generally at the fair trade level.

•

New Southwestern Brand

El Paso Natural Gas Products Co. is opening up a long-range marketing expansion plan in the Southwest.

The first step was taken last week—introduction of new "El Paso" brand gasoline at two Farmington (N. M.) service stations. An El Paso spokesman says that the new brand will be spread into "other Southwestern cities" in the months ahead.

Meanwhile, El Paso will continue to market "Dixie" brand gasoline at 125 retail outlets in West Texas, New Mexico, and Arizona.

•

A new retailer organization "to promote better relations between dealers and their suppliers in the West Coast marketing area" has just been born.

The new association, Western States Gasoline Dealers Council, Inc., came into being at a recent meeting of nine California groups and the Washington state dealers' group. Oregon dealers are expected to affiliate later, and plans also call for eventual inclusion of dealer groups from Arizona, New Mexico, Nevada, Utah, and Idaho.

Representatives of the council say that emphasis will be placed on "trying to get along with big oil companies in efforts to end price discrimination practices which lead to price wars."

Another aim: "To foster and promote legislation in the interest of dealers, at state and national levels."

•

A move to limit service station building in Oklahoma City is gaining momentum. Last week the city council proposed new restrictions on service station construction: a special "permits" law to limit new installations to "need and necessity."

Quick action on the proposed ordinance has been asked for by city planners, "before every corner is optioned by an oil company." The number of stations in the area had been increasing at the rate of two new ones a week.

Most new stations are located in new residential and supermarket areas, where business is not heavy at the present time, but may be in the next year or two.

Opposition is also forming to the connection of station wash racks and drains to the sanitary sewer.

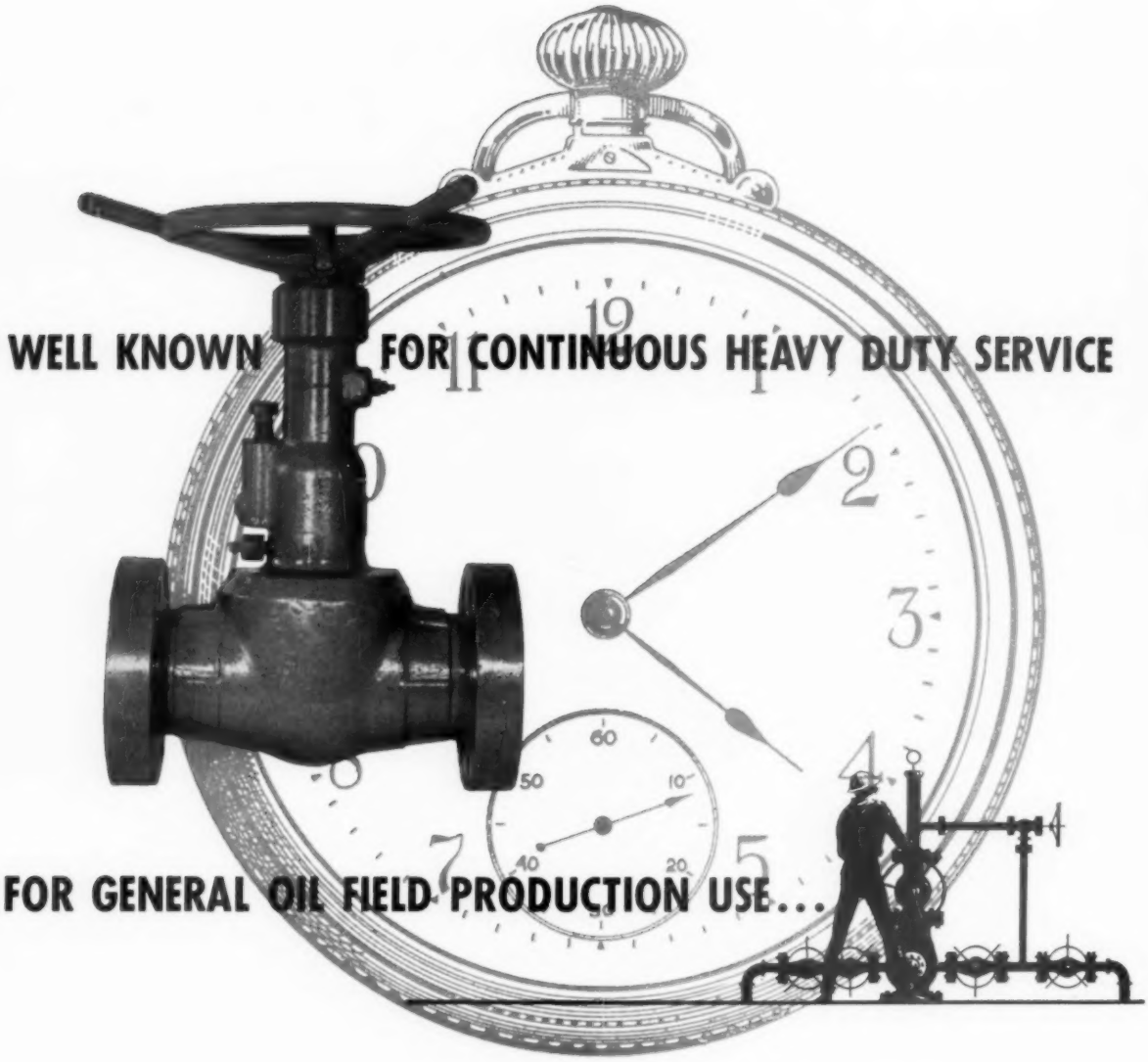
•

The Federal Trade Commission has charged two Philadelphia oil companies with selling reclaimed used motor oil as a new product.

Supreme Petroleum Products, Inc., and Penn City National Oil Co., according to FTC, sell reclaimed oil separately or blended with new oil under the trade names "Marvelube," "Superior," "Lube," and "Car-Lube."

This oil, FTC says, is sold in the same type of containers used for new oil, with no markings to indicate that the product is used. FTC says the public and dealers, misled into thinking the oil is new, have been induced to buy the products. The commission contends that such actions have unfairly diverted trade from competitors, in violation of the FTC act (PW—Oct.28'56,p24).

The parties are granted 30 days to file an answer to the complaint. A hearing is scheduled for Feb. 14 in Philadelphia.



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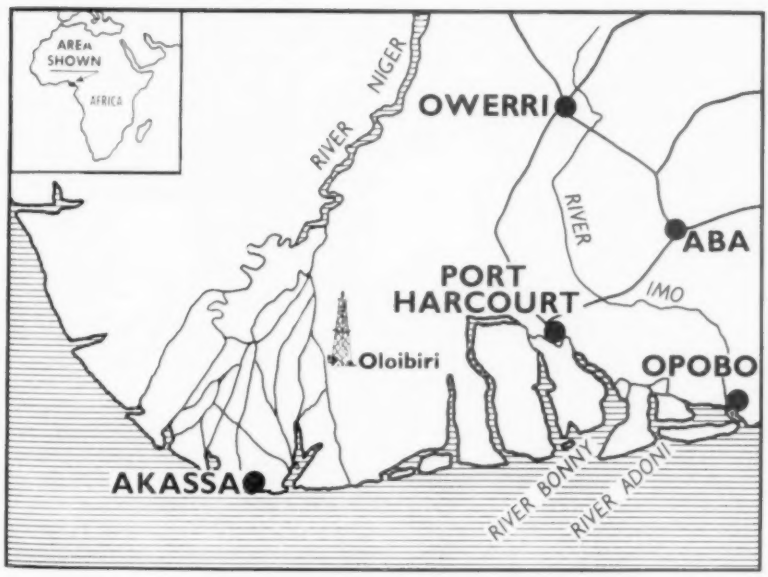


Study Outlet for Nigerian Oil

The possibilities of exporting oil from the Nigerian coast are already being considered by a joint Shell-British Petroleum company, whose prospects of establishing commercial production have brightened recently.

A survey off the Eastern Delta of the Niger river has been started by a British Admiralty survey vessel. It is collecting information on depths and current out to the 10-fathom line, between Akassa and the Adoni River, to determine whether tankers could be loaded by submarine line off this coast.

This loading method is in use in many places in the world (PW—Oct. 5'56,p23). One is Tapeline's Sidon terminal, in Lebanon. Another is off the coast of British Borneo.

Shell-British Petroleum Development Co. had been exploring in Nigeria for many years with little success—until this year, when it found its first good show of free oil at Oloibiri. A second well there also has found oil, and a third is now being completed.

The company expects to drill another five or six appraisal wells before it can determine whether the oil is present in commercial quantities.

Test production will be started at Oloibiri around mid-1957, according to Harold Bridges, a director of Shell-BP Petroleum Development Co. of Nigeria, Ltd.

Bridges said in Lagos last week that the testing will be carried out, one well at a time, to determine whether sufficient oil can be recovered to warrant the estimated $14-million cost of building pipelines and tanker loading facilities.

Special pipeline and other facilities for the planned test production will cost about $700,000.

Under the tests, the wells are expected to produce about 1,000 b/d from the 30-ft.-thick oil sands found thus far.

Though optimistic over the encouraging prospects at present, the company has not yet proved sufficient reserves to warrant the start of commercial production.

Even if next year's tests at Oloibiri prove the field to be economic, it might take another two years before the production stage is reached.

But on the other hand, Bridges added, "I have no hesitation in saying that we would already have started producing and exporting oil—if this field had been situated a few miles from a natural harbor deep enough to load modern tankers."

Next year, the Shell-BP company also expects to expand its exploration into the delta of western Nigeria, Bridges disclosed. Eight prospecting licenses have been taken out in that region.

In the meantime, it is investigating the various possible methods of exporting the oil if production is established.

India, Sets New Oil Target

NEW DELHI—A recommendation of Calcutta as the site for India's next refinery—the first to be government-controlled—is expected to clear the way for long-delayed development of new oil production in Assam.

The port on India's east coast was the first choice of an 11-man committee appointed by the government to study the debated question of suitable sites for the projected 40,000 b/d plant (PW—Nov.9'56,p32).

If the recommendation is accepted by New Delhi, a $21-million pipeline will have to be built to carry the crude 850 mi. from Assam Oil Co.'s Nahorkatiya oil field, in the state of Assam, to the $50-million refinery at Calcutta.

The committee's second choice was Barauni, in northern Bihar. This is closer to the Assam oil, but considerable development would have to be undertaken to make this rather remote area a suitable site for the plant, which will have to supply industrial needs to both the north and east.

According to the committee—and despite agitation in the state of Assam—Digboi came out a poor third in its choice of possible locations. This is the site of Assam Oil Co.'s old 6,000 b/d field and its present small refinery that processes the oil for local consumption.

The British-owned Assam Oil Co. is expected to have a minority share in the new refinery, and will probably serve as technical adviser.

Meanwhile, the government's hopes for substantial new production from Assam seem to be climbing even faster than the state's proved reserves. Parliament was told that output in the area—now being described as a potential "little Middle East"—could reach 60,000 b/d by 1959.

Only recently Assam Oil's chief geologist upped the estimate of proved and probable reserves in the Nahorkatiya area of the Assam valley to 365-million bbl. This would assure production of 50,000 b/d of crude for at least 20 years, plus some 45-million cu. ft. of gas daily—enough to meet 56% of India's present oil demand.

This estimate did not include the Hugrijan area, near Naoholia, where oil has also been proved, nor Moran, where drilling has just been undertaken. To date, Assam Oil has drilled 20 wells at Nahorkatiya, of which five

were dry. Two more wells are currently drilling.

The new hopes for 60,000 b/d production by 1959 were voiced by Minister for Natural Resources K. D. Malaviya.

His estimate is apparently based on the fact that Assam Oil has now found oil in its first wildcat at Moran, an area 25 mi. west of Nahorkativa. The well was drilled to 13,739 ft.—the deepest ever drilled in southeast Asia. It is described by the company as a good producer. A second well has been spudded in 2 mi. from this discovery.

The government's optimism about the new discoveries in Assam are shared by some oil circles in India. A Burmah-Shell official, back from a recent tour of Assam, told PETROLEUM WEEK's correspondent that Assam shows promise of becoming a "little Middle East" if properly exploited.

The Minister for Natural Resources hopes that India may attain total oil production of 100,000 b/d by 1962, in a steep climb toward oil self-sufficiency. This would be equal to present demand, which is expected to rise to an estimated 175,000 b/d in 1962.

At the moment, this sounds like counting oil wells before they're drilled. Besides the proved resources of Assam, the government pins its hopes for new production on the success of wildcatting that has not yet even been started, to be done either by Standard Vacuum or by the government's own Oil & Natural Gas Commission.

Stanvac is now expecting arrival of drilling equipment for its first wildcat in the Bengal Basin, at a site about 35 mi. north of Calcutta (PW—Aug. 10'56,p32).

The government's own oil exploration program in various areas of the country is just beginning to roll, along lines recommended by Soviet advisers. Malaviya told Parliament that a Russian geological consultant has been hired under a two-year contract to guide the Oil & Natural Gas Commission in execution of its program.

A team of 26 Soviet seismic and gravity experts was due to arrive last week. By the end of next April, the government expects to have a total of about 175 oil technicians from the Soviet bloc at work.

The Russian seismic crews, bringing equipment with them, will work in the East Punjab. Rumanians are scheduled to start structural drilling this month in the Jwalamukhi area of Punjab. Russian crews were scheduled to start structural drilling in Cambay (Bombay state) in January, but Malaviya warned that the Suez crisis may delay arrival of "vital" Soviet drilling equipment by as much as six months. Meanwhile, geophysical work in the Jaisalmer area of Rajasthan in northwest India is now being intensified with arrival of a French Schlumberger contract crew (PW—Nov.16'56,p60).

What's New / AROUND THE WORLD

Maracaibo Fire Out

VENEZUELA—Firefighters last week won a week-old battle to extinguish a Mene Grande well burning 8 mi. offshore in Lake Maracaibo in the middle of new oil concessions.

The well, No. 1 Ceuta, caught fire late Dec. 6 while a tool pusher and crew were working it over. Two men were burned when an explosion of undetermined cause ripped the rig platform and adjacent drilling barge, and scattered debris for hundreds of yards around.

Texas firefighter Paul (Red) Adair extinguished the blaze with dynamite on Dec. 13. Up to that point, Mene Grande had started building a foundation for a relief well to be drilled in case other measures failed.

Cost of damage to installations has not been established. Half of the rig platform was blown away.

No. 1 Ceuta was spudded in last April on Mene Grande's old national reserve V-575 concession, off the lake's eastern shore, then shut in after reportedly uncovering a 250-ft. pay zone. It is the company's first well on the lake outside its 1-km. shoreline strip. Nearest production is some 6 mi. away, on Shell's concessions.

The well site is surrounded by high-priced new leases awarded to Mene Grande, Shell, Venezuelan American Independent Oil Producers Assn., and Venezuelan Leaseholds. Venezuelan American has since farmed out its concession to a combine of Sun Oil and Atlantic Refining. Venezuelan Leaseholds also has sold rights in its tract, to a five-company group headed by San Jacinto Petroleum.

•

Unrest in Persian Gulf

KUWAIT—The threat of continuing Egyptian-inspired unrest in the Persian Gulf was underlined last week by sabotage of oil installations in this British-protected sheikhdom, even though the damage itself was apparently not great. Unlike neighboring Saudi Arabia, Kuwait has not banned shipments of its oil to Britain and France.

A series of bomb explosions (reportedly 16) set one well afire, damaged pipelines, and broke one submarine loading line at Mina al-Ahmadi.

Firefighter Myron Kinley was called in to extinguish the blaze, and tanker loadings were suspended only briefly. There was no disruption of Kuwait Oil Co.'s 1.2-million b/d production.

The company is owned jointly by British Petroleum and Gulf Oil. Its output accounts for a large percentage of Britain's oil imports even in normal times.

•

Stanolind to Drill More

CUBA—A step-up in Cuban drilling can be expected in 1957 as a result of a new agreement under which Cuban Stanolind will explore a further 3-million acres in Oriente and Camaguey provinces, held by Trans-Cuba Oil Co. and Cuban Venezuelan Oil Voting Trust.

The new contract supplements the agreement Stanolind signed with the two Cuban groups last year (PW—Sep.16'55,p23). Under the original pact, Stanolind would earn a 50% undivided interest in 12-million acres in Matanzas, Las Villas, Camaguey, and Oriente by spending $10-million on exploration.

Under the new agreement, Stanolind will increase this sum to a total of $14¾-million to include the additional 3-million acres.

Stanolind agreed to start drilling operations within the first quarter of next year, and to maintain a continuous drilling program for three years using one rig. It may reduce this period if it uses additional rigs.

Under the original contract, the U.S. firm agreed to drill 40,000 ft.

of hole a year, starting in 1957, or to spend $2-million a year on exploration.

In the meantime, Stanolind has staked a location for its first test well on the original acreage, at a site 4 mi. north of Alto Songo in Oriente. Operations have been delayed, however, by the disturbed political situation in the province.

The company has been carrying out geophysical work in two areas: at the southeastern end of Oriente; and offshore, off the western coast of the same province. A third Western Geophysical contract crew will be moved into Camaguey to do land work in the northern part of that province in the near future.

•

Arab Oil Did It . . .

BEIRUT—Arabs on all levels have come out of the recent events in the Middle East with strengthened feelings about oil as an economic club that can be brandished against the West.

If it was the United Nations that forced the British, French, and Israeli armies into a cease-fire in Port Said and Sinai, it was Arab oil—or, rather, the lack of it—that is forcing Britain and France to withdraw from Egypt.

This was the consensus of most Arab newspapers as the British and French started pulling out of Egypt.

Arabs are now certain, they say, that they can dictate their terms to Western Europe simply by withholding their oil and crying "aggressor" at any one who tries to balk them.

But there are still people in the Arab world—and in responsible positions—who believe that Arab interests, whether economic or otherwise, may best be served by continued cooperation with the West.

Now is the time, these say, to try to work out a solution of all pending problems and to start a new chapter in relations between the West and the Arab nations.

•

Oil Famine Reported

EGYPT—More Soviet crude oil and products will be needed before the new year to avert an acute oil shortage resulting from the complete stop in Egyptian oil production, according to unofficial reports leaking out of the country.

So far, there has been no rationing of gasoline or kerosine, nor are there any plans for it.

Egypt depends entirely on oil for its heavy industry, electric power, and road and rail transport. In addition, kerosine and bottled butane gas are widely used for cooking purposes.

The country's crude oil requirements are just under 60,000 b/d. Before the hostilities in Egypt, two-thirds of this demand was met by domestic production, from fields held by Socony, Anglo-Egyptian Oilfields (Shell), and International Egyptian, located on both sides of the Gulf of Suez. All of these fields have been shut down since then, and all properties of Anglo-Egyptian have been sequestered by the government as enemy property.

The Sinai fields, including three small Socony properties operated by AEO, were in the hands of Israeli forces for a while, but were reported not damaged. The AEO fields in the Eastern Desert, on the west coast of the Gulf of Suez, are now in the hands of the Egyptian government, and are reported shut down for lack of water.

In the meantime, AEO's Suez refinery (also taken over by the government), is now reported running out of crude stocks.

•

Offshore Line Readied

SAUDI ARABIA—April, 1957, is Arabian American Oil Co.'s target date for completion of a $20-million pipeline that will open up its Safaniya field, offshore in the Persian Gulf. Construction of the 140-mi. pipeline to the Ras Tanura refinery was started in January, 1956.

Construction of the offshore flow lines is moving toward completion. Plans call for 12 mi. of a 16-in. trunkline through the center of the producing area, and 10 mi. of 6-in. gathering lines from the individual wells. Work has been completed on 47% of the gathering lines.

The trunk and tributary lines are being laid from a huge barge, where the pipe is welded into a continuous line and lowered to the bottom of the Persian Gulf. Before being welded on the barge, each pipe joint is cleaned, primed, coated with a liquid asphalt, and then wrapped with an asphalt-impregnated paper in addition to a glass fibre wrap to prevent corrosion from salt water. A final process in preparation of the pipe is to wrap it with wire mesh and coat it with concrete.

The initial work on the pipe is a shore operation. When the welding is completed on the barge, each weld is examined by X-ray before the pipe is lowered into the water by a boom at the end of the barge.

On land, 60 mi. of pipe have been strung along the right of way, and most of it is now welded together. About 27 mi. of the line have been buried. Where surface land formations made burying impractical, a considerable portion—about 28 mi.—was laid above ground on steel supports. Steel piling was driven 15 ft. into the ground, and the piling was capped with steel ring girders, which support the pipeline.

•

ITALY—The government-owned oil company is being criticized in the Italian press for abuse of public funds, because of a reported offer of extra royalties to the Sicilian regional government.

In a bid for new exploration permits, Ente Nazionale Idrocarburi was said to have offered Sicily 25% of gross production—in addition to the royalties required by the regional oil law, under which private companies and ENI have been operating on an equal footing.

Criticizing this move, the financial daily, "24 Ore," notes that, since ENI is a government-owned corporation, the offer is tantamount to ENI's granting Sicily a public appropriation beyond the regional grant authorized by Parliament.

•

EGYPT—Sahara Petroleum Co. will resume exploration in the Western Desert within the next few weeks, it was announced this week.

Millard K. Neptune, president of the Continental Oil Co. subsidiary, secured permission from the U.S. State Dept. to return to Egypt with a group of ten Americans to resume work on the 90,000-sq. mi. concession the company operates for Continental, Cities Service, Ohio Oil, and Richfield.

Sahara temporarily shut down operations in late October, and evacuated about 60 employees and their families to Rome. A small group remained in Egypt to direct shutdown.

Three wells were drilling at the time. On near Mersa Matruh, about midway between the Libya border and Alexandria, has been drilled to 10,364 ft., but was fishing at about 6,620 ft. In the western part of the concession, one well was at 5,561 ft., the other at 7,280 ft.

•

ENGLAND—Cameron Iron Works, of Houston, has started construction of a new factory at Stourton to produce equipment for the oil industry.

Cameron's British subsidiary plans to start production at the new plant late next year. It will produce oil well drilling-control and production-control equipment, as well as other specialized items.

WALKING IS IMPOSSIBLE at plant sites like this, so many companies hire boats. But . . .

Tax Haunts Tidelands Transport

Shrouding the swamps of Louisiana is an issue of importance to all marshland and offshore oil and gas operators: Must the industry pay a tax penalty for chartering its required transportation—even though this activity bears no resemblance to common-carrier operations?

The industry's legal experts say no.

Uncle Sam's collector for the Louisiana district, however, says yes. And he's already made some collections.

The Internal Revenue Service in Washington, meanwhile, has adopted a let's-see-what-happens attitude.

And next year looms as a critical period in this war of nerves.

The issue stems back to World War II, when the government imposed "penalty" taxes to restrict travel of civilians, and to keep nondefense material from clogging the common carriers. In 1941, a 15% tax was slapped on the fares paid by individuals for travel in trains, planes, busses, etc. (it's now 10%). The next year, a 3% tax went on the for-hire movement of materials.

By 1944, Internal Revenue had decided it could apply the tax on material-movement to the budding oil and gas activities in the tidelands.

"We didn't fight it," says one oil company lawyer. "It didn't amount to much. We could segregate the taxable items readily in our records. And we figured it would look bad to get picayune about taxes while the war was on. Besides," he added, "we got an understanding that the bureau would not try to stick us with the tax on personnel transportation, too."

The industry had picked for-hire transportation, right from the start, as the most logical way to shuttle its men and equipment from site to site.

Natives of the area not only knew the territory, but they had boats.

Furthermore, both state and local officials urged the companies to rent boats, rather than set up their own fleets. This, the officials asserted, would give the companies flexibility without heavy investment, and it would boost the local economy.

It wasn't until 1953 that the Internal Revenue office in New Orleans decided it would collect the transportation tax on personnel movement—right back to 1948.

The Louisiana district IRS director singled out only a few of the more active tidelands operators in his district. He examined their records of payments for chartered personnel transport from 1948 to 1953, inclusive. Then he figured out the amount of taxes due—plus interest—and sent bills to the oil companies involved.

The most bizarre part of the situation is that, even if the tax were applicable—which is in dispute—it would normally be up to the boat owner, not the company that hires him, to pay the tax.

The New Orleans IRS office apparently took the position that it's the oil companies that have all the records, and that it's their money that's involved anyway.

The oil companies that have been approached seem to have gone along with this viewpoint—figuring that if a boat owner gets stuck with a tax bill, he'll only turn it over to the company (or maybe throw it away, since some of the owners are illiterate).

"We could have sat back and watched Internal Revenue try to get somewhere with these boat-owners, I suppose," says one company spokesman. "But we decided to meet the issue head on and get it over with."

So far, Gulf Refining Co. is the only one on record that's paid the tax—because the company has filed suit to recover the $8,087.44 (plus $33.16 interest) that it was assessed for its 1948 boat chartering.

The suit was filed last June in U.S. District Court, New Orleans. The bill for 1948 taxes was paid Dec. 28, 1955.

So far, neither Gulf nor IRS has made any moves to set a date for an airing of the issue.

Although the total industry stake in the fight may be considered relatively small, some companies could get tapped for sizeable chunks of cash.

Tidelands operators throughout the country are understandably guarded when asked about the number of chartered boats and other carriers that they're using to get their men and equipment from island to island and platform to platform. (Chartered helicopters would be affected, too.)

But some drillers and major integrated firms admit to "hundreds" of for-hire boat operations per day.

One company is reported to be spending about $1-million per year for personnel transportation—and has reportedly paid a tax bill of well more than $100,000 to pave the way for another possible test case. The procedure: A company must pay the tax, apply for a refund, then file a recovery suit within two years after the refund application is turned down).

Meanwhile, the Mid-Continent Oil & Gas Assn. has been tackling the problem along a different line: The group wants Congress to exempt the industry specifically by amending the tax laws (PW—Dec.14'56,p15).

The arguments against the tax, in

the Gulf suit, are likely to follow the same lines taken this month (and to no avail last year) by Mid-Continent spokesmen before a House Ways & Means subcommittee.

The gist of the argument is this: The movement of men and materials in the tidelands takes place between one company facility and another; it's no different from use of elevators by a company to get workers from one floor to another; the movement is almost entirely over company property, or through canals dredged and maintained by the individual company; the carriers are under complete control of the company that hires them; they work for weeks, months, and even years, under exclusive contract with the company that hires them.

Mid-Continent, furthermore, has lined up a number of previous examples of IRS failure with similar tax attempts to show that Congress never intended the interpretations that IRS has been making.

Internal Revenue, for example, forced owners of for-hire fishing boats into litigation, until finally the fishermen obtained Congressional exemption. Companies that had hired trucks to carry stone from their own quarries to their own crushers also obtained exemption. And the courts have ruled against IRS in several other cases.

What's New / IN TRANSPORTATION

The Justice Dept. is looking into California objections to the proposed purchase of Pacific Northwest Pipeline Corp. by El Paso Natural Gas Co. (PW—Nov.16'56,p32).

Edmund G. Brown, California's attorney general, has asked the government to study the deal on grounds that the merger would restore a "monopoly situation" for interstate natural gas supply to California.

Meanwhile, El Paso was before the Federal Power Commission seeking to strengthen its position in California with a proposed expansion of 150-million cu. ft. daily.

•

Standard Oil Co. (N. J.) now has a total of 12 giant-sized tankers on order or under construction.

The company's Dutch subsidiary, Esso Nederland N.V., last week ordered a 46,000-tonner to be built in Rotterdam, with the option to increase its size to 65,000 tons or 80,000 tons. Delivery is set for July, 1961.

British Esso Petroleum Co., Ltd., has two 46,000-tonners on order with Netherlands Dock & Shipbuilding Co. of Amsterdam.

In addition, the Jersey group has seven 46,000-tonners being built by Howaldtswerke, Germany (PW—Nov. 9'56,p28).

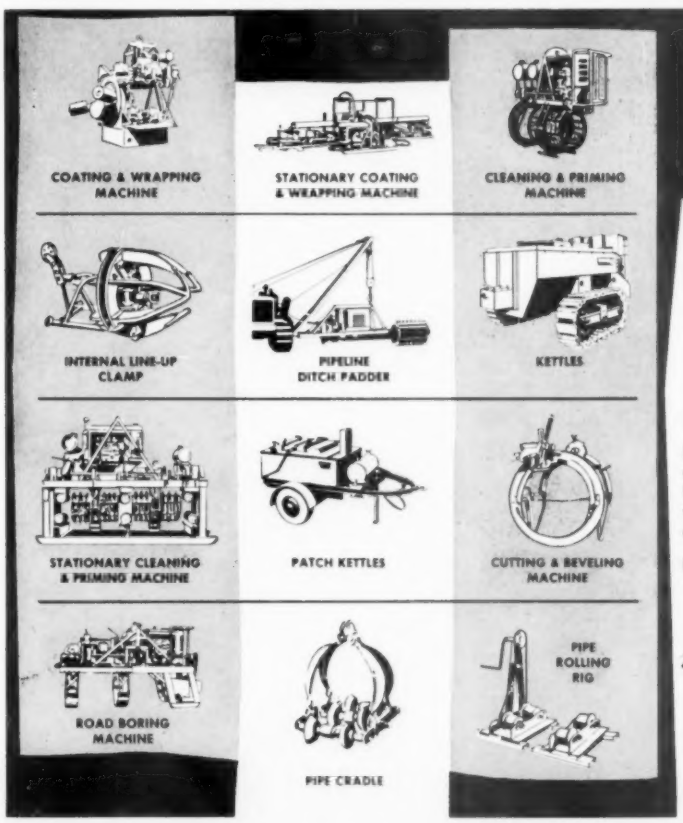
The Jersey group also has one of 45,500 tons and one of 46,000 tons under construction by A. G. Weser, of Germany—all ordered by Esso A. G. (the German subsidiary).

•

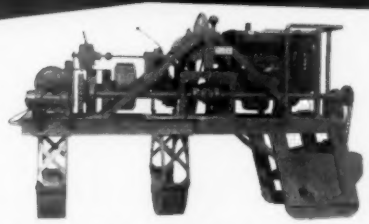
Crude and product line mileage totalled 188,540 mi. at the end of last year, according to a new report by the Bureau of Mines.

Some 31,105 mi. of pipe were laid in the 1953-55 period, and 13,069 mi. taken up—for a net gain slightly smaller than that registered in the previous three-year period.

Crude lines 12 in. in diameter and up gained 24%, while product lines 8 in. in diameter over gained 43%.



CROSE AUGER-TYPE ROAD BORING MACHINE



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Neither pipelining — nor traffic — is slowed down when you use the Crose under-road boring machine. It installs casing as boring progresses . . . eliminates cave-ins . . . absolutely prevents settling of concrete slab highways or railroad beds. There are three models for casing sizes up to 42".

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*Warehouses in 4 locations

The Market Place

AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All Prices as of December 17

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, Cargoes
- Gasoline, 98 oct prem. . . . 13.25-13.5
- Gasoline, 92 oct reg. . . . 11.25-11.75
- Kerosine 9.75-10
- **Heating oil, No. 2 . . . . 9.25-9.75↑**
- **Gas oil, 48-52 d.i. . . . 9.5↑-9.625↑**
- Fuel oil, bunker "C" $2.40-2.80

Carribean, cargoes
- Avgas, Grade 100/130 . . . . 16.75
- Gasoline, 93 oct research prem. . . . 11.5
- **Gasoline, 87 oct research reg . . . . 10.25↑**
- **Gasoline, 79 oct research . . . . 9.625↑**
- **Gasoline, 70-72 oct motor method . . . . 9.375↑**
- Kerosine 9.75
- Heating oil, No. 2 . . . . 9.25
- Gas oil, 48-52 d.i. . . . 9.375
- Fuel oil, bunker "C" $2.35

New York Harbor, barges
- Kerosine 11.25
- Heating oil, No. 2 . . . . 10.65
- Fuel oil, No. 6 . . . . $3.05

Okla.-Group 3, northern, shpt, bulk
- Gasoline, 88 oct reg. . . . 11.5-11.75
- **Kerosine . . . . 10-10.5↑**
- **Heating oil, No. 2 . . . . 9↑-9.5**
- **Fuel oil, No. 6 . . . . $2.35↑-2.50↑**

Chicago, bulk
- **Gasoline, 91 oct. reg. . . . 12.25-12.5↓**
- Heating oil, No. 2 . . . . 10.6-10.85
- Fuel oil, No. 6 high sulfur 8.3-8.6

Los Angeles, rack
- Gasoline, 84 oct. reg. . . . 13.1
- Diesel fuel, PS 200 . . . . 9.5-10.75
- Light fuel, PS 300 . . . . 3.10
- Heavy fuel, PS 400 . . . . $2.55-2.95

Natural Gasoline, Grade 26-70
- FOB Group 3 . . . . 4.5-5
- FOB Breckenridge, Tex. . . . 4

LP-Gas—Propane
- Oklahoma (Group 3) 5

Penna Lubes
- Bright stock, 25 p. t. . . . 27
- 200 vis. neutral, 25 p. t. . . . 25

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent 95 v.i. . . . 24-25
- Neutral, solvent 200-210 vis. . . . 19.75-20.75

Gulf Coast Lubes
- Bright stock solvent, 95 v.i. . . . 25
- Neutral, solvent, 200 vis. . . . 21.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, Grade 100/130 . . . . 18.375
- Gasoline, 79 oct. research 10.5
- Kerosine 10.875
- Gas oil, 48 d.i. minimum 10.625

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 . . . . $2.82
- North Dakota, 36.0-36.9 . . . . 2.82
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 . . . . 3.05
  - Gulf Coast, upper and lower, 26.0-26.9 . . . . 2.82
  - West Texas sweet, 36.0-36.9 . . . . 2.82
  - West Texas, New Mexico intermediate 36.0-36.9 . . . . 2.75
  - West Texas-New Mexico sour, 32.0-32.9 . . . . 2.61
  - East Texas flat 2.90
  - Mirando, 28.0-28.9 . . . . 3.11
- Illinois Basin flat 2.90
- Pennsylvania Grade, Bradford dist, flat 4.68
- California, Signal Hill, 21.0-21.9 . . . . 2.68†
- North Louisiana-Arkansas, 36.0-36.9 . . . . 2.82
- Wyoming sweet, 36.0-36.9 . . . . 2.75
- Wyoming sour, 32.0-32.9 . . . . 2.52

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) D-2, D-3, L.C. . . . 2.54
- Leduc-Woodbend (Alta.) D-2, D-3 . . . . 2.60
- Redwater (Alta.) D-3 . . . . 2.49
- Daily-Mississippian (Man.) 2.34
- Smiley-Viking (Sask.) 2.26

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido 3.40
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.04
- Oficina, 35.0-35.9, Puerto la Cruz 2.80
- Tia Juana Medium, 2¢ 5-26.9, Amuay 2.30*
- Bachaquero, 16.5-16.9, Amuay, Las Piedras 2.05**
- Tarra, 38.0-38.9, San Lorenzo 2.88
- Lagunillas Heavy, Amuay, Cardon, Las Piedras, flat 2.20

Differential per ½ deg. grav.; (*) 25¢ bbl. (**) 35¢ bbl.
†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabian, 34.0-34.9, Ras Tanura 1.93
- Basrah, 35.0-35.9, Fao 1.85
- Iranian, 34.0-34.9, Bandar Mashur 1.91
- Iranian, 34.0-34.9, Abadan 1.86
- Iraq, 36.0-36.9, Fao 1.87
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.72
- Qatar, 41.0-41.9, Umm Said 2.10

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon 2.69
- Iraq, 36.0-36.9, Tripoli, Banias 2.69

Far East, Cargoes, FOB Lutong, Sarawak)
- Seria Light, 37-38 . . . . 2.60

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-N. Y., clean . . . . (USMC +225%) $9.26↑**[1]
- **U.S. Gulf-N. Y., dirty . . . . (USMC +222½%) $9.19↑**[2]
- NWI-USNH, dirty . . . . (USMC +205%) $8.24[3]
- NWI-UK/Cont., dirty . . . . (Scale +325%) 138/1*
- Persian Gulf-UK/Cont., dirty . . . . (**Scale +325%) 343/6*
- Persian Gulf-USNH, dirty . . . . (USMC +100%) $25.40

**Sterling **Via Cape of Good Hope Owners asked: (1) $9.98 (USMC +250%); (2) $9.40/9.98 (USMC +230/250%); (3) $8.37/8.64 (USMC +210/220%).*

The Market Trend

Gulf-Carribean Sellers: In a Good Spot

Gulf Coast and Caribbean crudes are in an enviable sales position. With the Middle East in ferment, they can sell cheapest and quickest to Europe as well as to the East Coast of North and South America.

This supremacy of Gulf/Caribbean oils will show up next month in the response Brazil gets to her requirement for 90,000 b/d of crude, shipments to begin on a five- to ten-year basis in 1959. The guessing before the fact is that sellers of crude in this hemisphere can name their terms and stick to them. Brazil will wind up paying full posted prices on any nearby crudes it can find, and offerings probably will be shy at that.

A strong seller's market in the Gulf and Caribbean is in sharp contrast to the not-too-distant past. Marketers of crude can offer their oils on an f.o.b., cash-and-carry basis, and even choose their customers. Gone are the delivered-price deals, at USMC-40% freight, which Caribbean sellers last year had to give to equate their oils in Canada and South America with crudes from the Persian Gulf.

The strong seller's position in the Gulf and Caribbean carries into distillates and heavy oils also. Recent cargo sales for export have been at premiums of 0.375¢ a gal. for gas oils, 0.5¢ a gal. for kerosine, and 40¢ a bbl. for bunker "C" fuel.

But the trouble spot is gasoline. And the predicament that's shaping up on this product easily could be the determining factor in future prices for U. S. and Caribbean crudes. The difficulty is that the foreign demand pattern runs heavily to gas oils and bunker oil, with relatively minor stress on high-octane motor fuel. If U. S. and Caribbean refiners step up their runs to meet European demands in addition to their normal markets, then the Sunday-punch product—top-grade motor fuel—may easily become an item of distress.

Bunkering Prices Up:

Contract marine customers of Mobil Overseas Co., Inc., will start paying sharply higher prices for ships' bunkering next month in Europe. Prices in the U. K./Continent area will go up 35% or $8.47 a ton (about $1.30 a bbl.), to a total of $32.13 a ton.

The reason for the increase is laid squarely on the closure of the Suez Canal. "Normal tanker distribution patterns have been altered," the company said, "resulting in longer and uneconomic voyages . . ."

Some Sellers Look East:

A new wrinkle of the Middle East crisis is that Persian Gulf sellers are eyeing Far East markets more closely than ever. With crude outlets throttled down because of the tight tanker situation for around-the-cape hauls to Europe, several sellers have stepped up sales pressure on Japan.

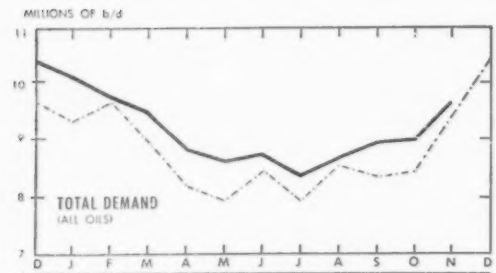
Japan, as long as the crisis lasts, could be a made-to-order market for cash-drained British and French oil interests. Japan is a perennial crude buyer. Almost always in the market. It is frequently willing to pay in sterling currency, and occasionally in dollars.

48 d.i.:

Argentina only got 60% coverage on her request for 15 cargoes of gas oil over the next year. One U. S. company made the only offer—just nine cargoes.

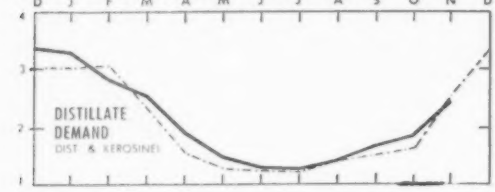
PETROLEUM WEEK'S

Fingertip Figures



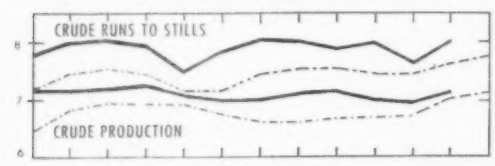
TOTAL DEMAND

Latest 4-week average	10.732
Year ago	10.121



DISTILLATE DEMAND

Latest 4-week average	3.192
Year ago	3.078

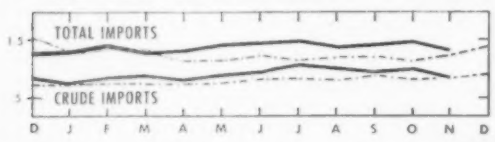


RUNS TO STILLS

Latest week	8.000
Previous week	7.865
Year ago	7.684

CRUDE PRODUCTION

Latest week	7.355
Previous week	7.353
Year ago	6.945



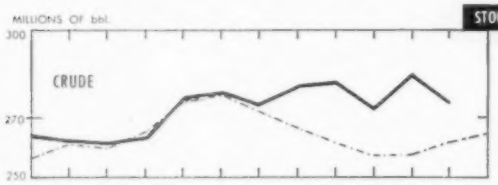
TOTAL IMPORTS

Latest week	1.227
Previous week	1.684
Year ago	1.293

CRUDE IMPORTS

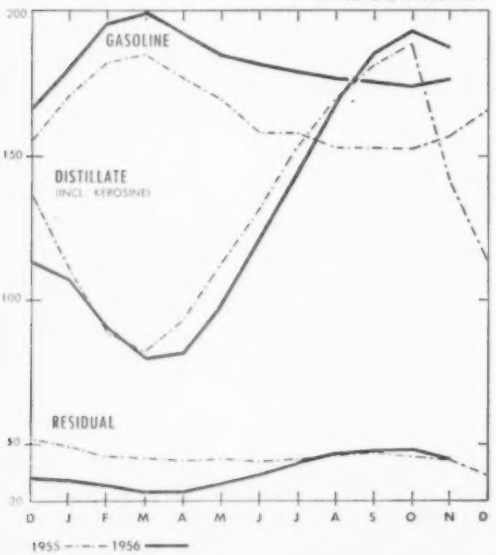
Latest week	.692
Previous week	1.084
Year ago	.819

STOCKS



CRUDE STOCKS

Week ended 12-8	273.6
Previous week	275.3
Year ago	256.9



DISTILLATES

Latest week	172.0
Previous week	178.7
Year ago	155.9

GASOLINE

Latest week	177.0
Previous week	175.4
Year ago	160.4

RESIDUAL

Latest week	43.1
Previous week	43.5
Year ago	40.9

Total domestic and export demand for petroleum in the first half of 1957 may average 10¼-million b/d, or even higher, if shipments of U.S. crude and fuel oils to Europe lasts through next June.

Such a rate of demand would represent an 11% increase over the first half of 1956.

It's impossible to predict just how long the European need for U.S. petroleum will continue. But six months is the figure that's being widely mentioned as the time required to restore disrupted transportation facilities fully.

Present indications are that total new supply (domestic production plus expected imports) will run at least 250,000 b/d below anticipated demand in the first half of 1957.

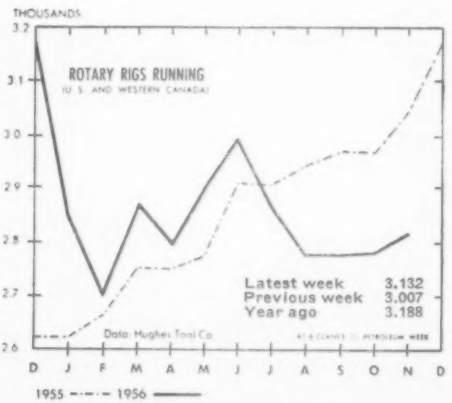
It would mean, of course, a draft on inventories of crude oil, and to some extent of distillates and residual fuel, to make up the difference.

And at such a rate of demand, the requirements for domestic crude oil will range upward from 7.8-million b/d, or at least 455,000 b/d above current record production.

Export movements of petroleum—primarily crude oil—in the last two months of this year is causing a sharp increase in demand.

Revised figures indicate that demand last month averaged 10,028,000 b/d, up 5.6% over the previous November. Assuming that tankers will be available for the expected movement of around 450,000 b/d for all of December, demand this month will approximate 11,700,000 b/d, far and away a new record.

For all of 1956, it now appears that total demand will average about 9,350,000 b/d.


THOUSANDS
ROTARY RIGS RUNNING
(U. S. AND WESTERN CANADA)
Latest week 3,132
Previous week 3,007
Year ago 3,188
Data: Hughes Tool Co.
AT A GLANCE (C) PETROLEUM WEEK
D J F M A M J J A S O N D
1955 - - - 1956 ——

DEPT/Personals

G. D. (Dan) ALMEN, JR., has been elected a vice-president of Sinclair Oil & Gas Co. He will continue as manager of the company's offshore operations, with headquarters at New Orleans. Almen was formerly assistant to Sinclair's president, H. B. Smith.

L. A. BELL, district production superintendent for Sinclair Oil & Gas Co. at Oklahoma City, has been promoted to assistant division production superintendent, at Tulsa. He succeeds **K. E. Thornton. O. G. Simpson,** district superintendent in Sinclair's production department at Nowata, Okla., will be transferred to Oklahoma City to succeed Bell. **C. E. Most,** assistant district superintendent at Nowata, will be promoted to district superintendent. **C. L. Cox,** district foreman at Madill, Okla., will be promoted to assistant superintendent and transferred to Nowata.

RAOUL BETHANCOURT, division petroleum engineer for Sun Oil Co., has been elected chairman of the Dallas section of the American Institute of Mining, Metallurgical & Petroleum Engineers. He succeeds **John Arps,** of British American Oil Producing Co. Other officers elected are: **Allen Gibson,** Magnolia Petroleum Co., first vice-chairman; **Norman Clark,** Core Labs, second vice-chairman; **Joe Gordon,** Three States Natural Gas Co., treasurer; and **Fred Oliver,** DeGolyer & MacNaughton, secretary. Incoming directors are **Frank West** and **Arps.**

A. C. CHILDERS, JR., has been elected president of Toklan Oil Corp., Tulsa. He was formerly executive vice-president. He succeeds **Roy B. Kelly,** who resigned. **C. K. Smith,** general superintendent, Tulsa, has been promoted to vice-president in charge of drilling and production. **E. P. Neal,** manager of the exploration department, also has been made a vice-president.

HAROLD G. TEVERBAUGH has been elected a vice-president of Texas Natural Gasoline Corp., at Tulsa. He formerly was general superintendent of the company.

B. C. ASTRUP, manager of Shell Oil Co.'s four-state New York marketing division, has been elected chairman of the operating committee of the Oil Industry Information Committee for the New York-New Jersey district. **W. M. Keppel,** public relations representative for Esso Standard Oil Co., has been named chairman of OIIC's Metropolitan New York Committee.

WAYNE SANDERSON has been appointed manager of Acme Oil Tool Co.'s new Canadian branch in South Edmonton, Alta. Sanderson was formerly a fishing tool operator for the company in Oklahoma.

F. E. GODFREY, Big Chief Drilling Co., Oklahoma City, has been appointed vice-chairman of the accounting committee of the American Assn. of Oilwell Drilling Contractors. **Gerald N. Eason,** of Fain-Porter Drilling Co., was named vice-chairman of chapter activities for the association.

R. F. GEORGE has been named president of the newly formed Well Production Services, Inc., of Denver, Colo. **W. V. Jones** was named vice-president, and **George Wright,** secretary-treasurer.

SIGNAL OIL & GAS CO. has named **Daniel S. Johnston, H. J. Stroud,** and **James K. Wootan** to the board of directors. Johnston is assistant manager of the crude oil producing department. Stroud manages the company's industrial and public relations department. Wootan is land and lease department manager. The new directors are headquartered in Los Angeles.

DR. ROBERT M. KENNEDY is the new associate director of research and development for Sun Oil Co., Philadelphia, Pa. **Dr. Abraham Schneider** succeeds Kennedy as manager of the basic research division. Schneider was formerly section chief in the fuels division.

JAMES D. HARRIS (left) and **JOHN F. GARDNER** (right), have been elected vice-presidents of Fluor Corp., Ltd., Los Angeles. Harris also has been promoted to general counsel from his former position as chief counsel for the company. Gardner will be in charge of employee and public relations and advertising for Fluor. He was formerly a director of the same department.

GLENN L. WERLY has been appointed domestic marketing manager for Socony Mobil Oil Co., Inc., New York. **Arthur W. Warner** has been named eastern region manager. **Harold E. Jenkins** succeeds Werly as manager of retail merchandising. **Quentin W. Regestein** assumes the newly established position of administrative assistant to the domestic marketing manager.

WILLIAM EVELYN, Casper (Wyo.) petroleum engineering consultant, has been hired by the Wyoming Oil & Gas Commission as adviser to the state's mineral supervisors and the commission.

T. E. HOBBS is president of the newly organized Utah Geophysical Society, granted a charter recently by the Society of Exploration Geophysicists. He is a divisional geophysicist for General Petroleum Corp. in Salt Lake City. Other officers of the Utah group are **John Cheney,** divisional geophysicist, Shell Oil Co., first vice-president; **Prof. Kenneth Cook,** University of Utah, second vice-president; **John Erwin,** geophysicist for the western mining department of American Smelting & Refining Co., secretary-treasurer.

CHARLES R. PERRY has been appointed research and development engineer for Sivalls Tanks, Inc., petroleum equipment manufacturing firm with headquarters in Odessa, Tex. He will develop and test new products and services.

R. O. (Bob) WILSON, Cosden Petroleum Corp., has been named chairman of the board of The Asphalt Institute, College Park, Md. Five new regional vice-presidents elected at the group's annual two-day directors' meeting are: **T. F. McCarey,** Cities Service Oil Co.; **D. H. Jenks, Jr.,** Ashland Oil & Refining Co.; **G. L. Farnsworth,** Husky Oil Co.; **C. Wayne Barbour,** Allied Materials Corp., and **C. V. Kiefer,** Shell Oil Co.

J. E. BAILEY, chief petroleum engineer for the southern division of

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Tidewater Oil Co., has been sent by the company to Iran to serve two years as senior technical adviser to National Iranian Oil Co.

BURTON P. SMITH, director, vice-president, and treasurer of Pioneer Natural Gas Co., Amarillo, Tex., has been made president of Pioneer Gathering System, Inc. (Pioneer Gathering System was recently acquired by Pioneer Natural Gas as a wholly owned subsidiary.) Smith was formerly treasurer of Texas Eastern Transmission Corp. at Shreveport, La. **C. W. Pankratz** has been appointed vice-president and chief engineer. **A. F. Cox,** president of Amarillo Oil Co., has been made president of the newly formed Pioneer Production Corp. **T. S. Whitis,** vice-president in charge of transmission for Pioneer Natural, has been named vice-president of Pioneer Production.

R. C. BROWN, president of Hudson's Bay Oil & Gas Co., Ltd., has been elected chairman of the board of governors of the Canadian Petroleum Assn. He succeeds **G. L. Knox,** president of California Standard Co., of Calgary. Both were reelected to the board, along with the following: **C. U. Daniels,** Royalite Oil Co.; **C. E. Dunlap,** Sun Oil Co.; **Bart W. Gillespie,** Home Oil Co.; **Vernon Taylor,** Imperial Oil.; **T. W. G. Thomson,** Texaco Exploration Co.; **O. I. Torkelsen,** British American Oil Co.; **R. A. Cruickshank,** Canadian Devonian Petroleums; **V. H. Hunter,** Imperial Oil; **C. E. Leach,** Tidewater Oil; **D. M. Tyerman,** MacPherson, Leslie & Tyerman. New board members are: **J. G. Spratt,** Triad Oil Co.; and **W. L. Powell,** British American Oil.

GEORGE L. COLEMAN, of Miami, Okla., has been elected a director of Zapata Petroleum Corp. He is president and director of the First National Bank of Miami.

ERNEST FISCHER has been named engineer for the New Mexico Conservation Commission, at Hobbs. He was formerly with Gulf Oil Corp.

BERNARD G. ZIV, public relations manager for Shell Oil Co., has been elected president of the Chicago Oil Men's Club.

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PETROLEUM WEEK REPRESENTATIVES

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350 Park Square Bldg.
Hubbard 2-7160

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W. F. Holbrook
520 North Michigan Avenue
Mohawk 4-5800

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Superior 1-7000

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Rittenhouse 6-0670

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209 Constantine Bldg.
611 South Boston
Gibson 7-5594

England, London E.C. 4 — Herber Lagler
McGraw-Hill Co., Ltd.
95 Farrington St.

Other Oil Industry Personnel Changes:

Company	To:	From:
British-American Oil Producing Co.		
R. L. Marsh	Dist geologist, Billings, Mont.	Dist geologist, Houston
Carter Oil Co.		
Sam Marsh	Geophysical supvr, Shreveport, La.	Geophysical supvr, Billings, Mont.
W. H. Dawson	Geophysical supvr, Billings	Mattoon (Ill.) staff
Myron C. Munson	Northern div scout, Billings	Dist scout, Rawlins, Wyo.
James L. Wible	Prod supt, Billings dist.	Prod supt, St. Elmo, Ill.
Cities Service Oil Co.		
L. L. Patterson	Prod supt, Ambrose plant, Blackwell, Okla.	Plant eng, Blackwell
George Berry	Scout, Amarillo, Tex.	Seismograph crew, Kansas
Gulf Oil Co.		
Merlin A. Johnson	Explor geologist, Oklahoma City	Explor geologist, Evansville, Ind.
Helmerich & Payne, Inc.		
G. W. Cottrell	Prod eng, Tulsa	Prod eng, Pure Oil Co., Olney, Ill.
Honolulu Oil Corp.		
Bob Critchlow	Geologist, Bakersfield, Calif.	
Kerr-McGee Oil Industries, Inc.		
N. C. Kymes	Supt, Fittstown (Okla.) plant	Field supt, Milfay (Okla.) plant
Kenneth Smith	Field supt, Milfay plant	
National Supply Co.		
Howard A. Steele	Market research analyst, Pittsburgh	
Phillips Petroleum Co.		
R. E. Nemeck	Dist landman, Casper, Wyo.	
R. J. Haas	Dist explor geologist, Denver.	
Charles Sanders	Dist devel geologist, Denver	
Pure Oil Co.		
R. Earl Corbitt	Div land agent, Billings, Mont.	Asst div land agent, Billings
Chester M. Harden	Drill and prod supt, Maracaibo, Venezuela	Div prod supt, Billings
Schlumberger Well Surveying Corp.		
Bill Beazley	Dist mgr, Harrisburg, Ill.	
J. Lester Heath	Mgr, Oklahoma div, Oklahoma City	Rocky Mt. div mgr, Billings, Mont.
C. B. Evans	Rocky Mt. div. mgr, Billings	
Seismograph Service Corp. of Canada		
Lauren G. Morris	Mgr, seismic div, Calgary	Party supvr, domestic div, Seismograph Service Corp., Billings, Mont.
Glenn E. Blackledge	Mgr, logging div, Calgary	Asst mgr, Seismograph Service of Mexico
Shamrock Oil & Gas Corp.		
Charles Henslee	Geologist, Amarillo, Tex.	Dist explor office, San Antonio
Charles Snow	Scout, Amarillo	Dist explor office, San Antonio
Shell Oil Co.		
J. L. Miller	Mgr, Montreal refinery, Shell Oil Co. of Canada, Ltd.	Supt, oper, Houston refinery
A. J. Wood	Supt, oper, Houston refinery	Chief technologist, Wood River (Ill.) refinery
Sinclair Oil & Gas Co.		
Ted Tucker	Geologist, Oklahoma City	
John F. Parcell	Chief eng, gas prod, Eldorado, Tex.	Chief eng, gas prod, Drumright, Okla.
C. L. Cox	Asst dist prod supt, Nowata, Kan.	Dist foreman, Madill, Okla.
Robert W. Stallings	Dist foreman, Madill	Dist foreman, Thrall, Kan.
Clyde C. Osborn	Dist foreman, Thrall	Asst dist foreman, Nowata, Okla.
Stanolind Oil & Gas Co.		
J. B. Jones	Dist explor clerk, Salt Lake City	
Sun Oil Co.		
Frank Siegel	Explor mgr, Canadian prod div, Calgary, Alta.	Asst to div chief geologist, Calgary
Hilton Westmore	Chief geologist, Canadian prod div, Calgary	Asst chief Geologist, Calgary
A. Douglas Brown	Pet eng, Canadian prod div, Calgary	Field pet eng, oper dept, Calgary
Trunkline Gas Co.		
Lloyd J. Taylor	Supt, prod activ, land dept, Houston	Dist mgr, Midstates Oil Corp., Houston
Union Oil Co. of California		
Jim McCourt	Sr geologist, Denver	Durango (Colo.) staff
New Ventures—		
S. R. Evans	Geological consultant, Tulsa	D. D. Feldman Oil & Gas Co., Corpus Christi, Tex.
Cecil M. Keller	Independent oper, Tulsa	Div landman, chm explor committee, central div, Tidewater Oil Co.
Max Mott	Geological consultant, Denver	Geological staff, Union Oil Co. of California, Denver

Steer Clear of Controls!

THE PROBLEMS of supplying Europe with oil are of such magnitude that they could very easily lead to a reimposition of government controls over a large part of the American economy. The main avenue of approach for federal controls would be the allocation of steel to essential industries—particularly oil.

Pressure already is being generated for some form of voluntary allocation of extremely tight steel plate. Plate, of course, is the essential steel item needed both for large-diameter pipelines and for tankers.

Fortunately, government departments, such as the Office of Oil & Gas and the Office of Defense Mobilization, are reluctant to take any steps that would lead to federal controls. Officials in these departments say they now plan no "directives" to the oil industry or to state conservation commissions based on the recommendations of the Middle East Emergency Committee.

Instead, the government is letting each oil company make its own moves toward fulfilling the MEEC plan. And in expanding pipelines, tanker fleets, and storage capacity there will be a scramble for steel.

BUT IT IS BETTER that the oil industry scramble for its steel in the open market than to have a government agency "programming" what supply it thinks each producer, refiner, pipeliner, and marketer should have. Even with the best talent from the industry directing a government allocation program, such a method has never proved to be entirely satisfactory.

Too, there is no such thing as partial government control. Government allocation of steel would lead to a mass of regulations to hamstring the industry at a time when individual company initiative is most needed.

PRESSURE IN THE OIL INDUSTRY for allocation of steel—even on a voluntary basis—could lead to another hodge-podge of government regulations such as existed during World War II and during the Korean War.

Oil men should think carefully before they do anything that might bring about another such siege of government controls.

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– M. J. Rathbone, President, Standard Oil Company (New Jersey)

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